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Editorials.

DOGS AND THEIR LICENCES.

It is very obvious that members of the veterinary profession are unaware of the position in which they stand in respect to the law on the above subject. Otherwise it is difficult to understand their apparent indifference on a question which may seriously affect any practitioner who has a canine hospital, large or small. If a veterinary surgeon having, say, twenty dogs in his hospital for treatment or livery were to be summoned for having these animals on his premises without licences for them, and if he were to be fined in respect to each of them, there would soon be a big cry raised, and rightly, too. Yet such appears to be the state of the law on the subject that such a contingency might arise at any time, and some of us might be very severely hit.

In last month's *VETERINARY JOURNAL* we published a concise and clear note on the subject from the pen of Mr. Finnie, barrister-at-law, in which he showed that in England the owner or custodian of a dog must have a licence. But he argued that a veterinary surgeon might be exempted from such liability by stating that he (the veterinary surgeon) was the servant of the owner for the time being and in respect to that dog. Since publishing that article we have consulted other counsel, Mr. Hanna, who very kindly gave us his opinion, which we publish on page 708.

After pointing out some of the differences between English and Irish law on the subject, Mr. Hanna is of opinion that on this particular point the veterinary surgeon is in the same position in both countries. But he is unable to agree with Mr. Finnie

as to the veterinary surgeon being in the position of servant in respect to patients, and he quotes a hypothetical case to illustrate his reasons. Consequently it would seem doubtful if a veterinary surgeon could claim exemption on that ground. If a veterinary surgeon allowed a patient to escape from his premises and be lost, he would certainly be responsible to the owner for the value of that dog. Such a case would tend to show that the veterinary surgeon must be considered, as Mr. Hanna says, to be an independent principal contracting to treat the animal, and not a servant or agent.

Again, Mr. Hanna points out that the liability for licensing a dog is by statute attached to the person in possession of the premises where the dog is kept. To us that makes it quite clear that in the present state of the letter of the law the veterinary surgeon would be, and is, liable for the licensing of any dog on his premises. In England, consequently, it would seem necessary for a veterinary surgeon to take out as many dog licences as he has kennels in order to be free from the dangers of prosecution when his hospital is full—surely a most ridiculous state of affairs. But in Ireland that would not apply, as each licence must bear on the face of it a description of the dog licensed. One way out of the difficulty suggests itself to us, although it may not be free from objections. We suggest that the veterinary surgeon might charge a nominal rental to the owner of a dog for the kennel occupied by the dog while in hospital. The owner would then be considered to be in possession of the premises occupied for the time being by the dog. Such procedure would probably meet the case in both England and Ireland. We shall no doubt be met with the argument that, according to the *spirit* of the law, the veterinary surgeon would not be liable; but some judges have a way of administering the hard *letter* of the law, and apologising for so doing in cases where the letter and spirit of the law are not in agreement.

The only real solution of the difficulty is the inclusion of some clause of exemption from liability for licensing by veterinary surgeons in respect of dogs on their premises *bonâ fide* for treatment or livery. Such a clause might be introduced into the Dog Regulation Act, or into the proposed new Veterinary Surgeons Act. We commend the subject to the earnest consideration of the Parliamentary Committee of the Royal College of Veterinary Surgeons.

MAJOR-GENERAL F. SMITH, C.B., C.M.G., F.R.C.V.S.

It can be no exaggeration of fact to make the statement that in every country of the world where the treatment and study of the diseases of animals has become recognised the name of Colonel Fred. Smith is well known as one of the hardest and most enthusiastic workers in the cause of veterinary science. To have been selected as the controlling head of the Veterinary Staff of the British Army is in itself an honour to which few men dare aspire, and to succeed must of necessity fall to the lot of fewer still. When, however, in addition to this is also accorded a place in the foremost rank of the scientific workers in comparative physiology and animal hygiene, it is not too much to say that he has earned the gratitude and admiration of all his fellows.

Successful in his own sphere, unsurpassed in his enthusiasm for professional work, and always willing to lend a helping hand, Major-General Fred. Smith has the support of the Army Veterinary Staff in all efforts he may make for its advancement, and, as regards the veterinary profession in civil life, they one and all are in accord in congratulating him upon his new honour.

His contributions to veterinary literature have been far too numerous and varied to mention in the short space at disposal; nor is it necessary, for in the minds of the profession they are all well known. No one can read them without being struck by the painstaking and thoughtful research which must have been undertaken before any conclusions were arrived at and published, and his books on physiology and veterinary hygiene have been for some years the recognised standard text-books in the veterinary schools of all English-speaking countries.

Wherever he has been located, whether in time of peace or of war, Major-General Smith has always done invaluable work for his profession, and made this his first thought. Even in the recent busy times of the South African war the profession at home received evidence of it in articles published in the veterinary Press.

That he may have good health to enjoy his well-earned advancement is the wish of all of us.

Original Articles.

DOGS AND THEIR LICENCES.

BY H. HANNA, BARRISTER-AT-LAW, DUBLIN.

ASSUMING that the statement at page 671 of the November number of the Journal is a correct summary so far as the statute law of England on this subject is concerned, it is apparent, from the consideration of the Irish statute on the corresponding subject-matter, that the case of the veterinary surgeon receiving dogs for treatment is, as regards licences, a *casus omissus* from the legislation for both countries. The Irish legislation is contained in the Dogs Regulation (Ireland) Act, 1865. The differences in the law of the two countries is very slight, and may be shortly summarised. In Ireland you license a particular dog, and the description must be given in the licence, so as to identify the animal; in England, as Mr. Finney shows, you license the individual to keep one dog, or two dogs, as the case may be. In England you cannot transfer the licence, but in Ireland you can do so in all cases of sale or gift of the dog by obtaining a certificate of transfer from the Clerk of the Petty Sessions. In other respects the law of the two countries seems to be the same.

Now what is the position of the veterinary surgeon? In Ireland, he cannot come under the transfer section, as he neither buys nor gets a gift of the dog, so that for all practical purposes he is in the same position on this point in both countries.

Section 7 of the Irish Act says that the occupier of any house or premises where any dog is kept or permitted to live shall be liable to pay the licence duty, unless he can prove (1) that he is not the owner or has not the custody, and (2) that the dog was on his premises without his sanction or knowledge. Now, these defences seem to be out of the question for a veterinary surgeon, who has the possession of a dog for the purposes of treatment or kennelling. This position is made even clearer by the provisions of Sections 20 and 21 in reference to prosecutions for offences under the Act; the words used in these sections are: "the person having in his custody or possession any dog," &c., shall be liable.

The statutes therefore give no protection to the veterinary surgeon, so Mr. Finney, in his clear and concise note, is driven to see whether, under the general principles of law, he can spell out a defence for the profession in this matter. His solution is that the veterinary surgeon holds the dog as servant or agent of the owner, and that possession of the servant is possession of the master. On this point I do not agree with him. The veterinary surgeon is in no legal sense the servant of the dog owner; he is an independent contracting party, who enters into a contract with the owner to treat his dog; he enters into the contract on his own behalf, and he is himself a principal in the transaction, and cannot with accuracy be described, either legally or in ordinary parlance, as the servant or agent of the dog owner. Here is a test of his position. If the veterinary surgeon is the agent or servant, the dog owner is liable for the negligent or careless acts of the veterinary surgeon in carrying out the treatment. Suppose the veterinary sur-

geon negligently allows a dog suffering from distemper, which is in his yard for treatment, to come into contact with another canine patient, transmitting to the latter the infection, from which it dies, could the owner of the first dog be made liable for the negligence of the veterinary surgeon? If the veterinary surgeon is a servant or agent, he (the owner) would, on the most elementary principles of law, be liable. But it is obvious that the responsibility would be that of the veterinary surgeon alone, as he was an independent contracting party.

But I would go further, and say that there is an error underlying the view that possession of the servant is possession of the master for the purposes of the dog-licensing legislation. The liability for licensing is by the statute attached not to any individual by reason of owning a dog in the sense of being the proprietor thereof, but solely by reason of his being in possession of the premises where it is kept. There is no mention of servant from the one end of the Act to the other, and if it is kept at the servant's premises for the master, in strict law the servant should be licensed. But, as a matter of practice, in both countries the owner licenses the dog in his own name, no matter where it is kept, and the possession of the licence has come to be regarded, in Ireland at least, where the dog is identified on it, as some evidence of ownership.

These few remarks show that the position of the veterinary surgeon and the owners of canine hospitals should be, at some convenient time, brought under the notice of Parliament.

SOME ABNORMALITIES IN THE ARTERIAL SYSTEM OF THE HORSE.

BY J. F. CRAIG, M.A., M.R.C.V.S., PROFESSOR OF ANATOMY IN THE ROYAL
VETERINARY COLLEGE OF IRELAND.

ABNORMAL appearances and positions of arteries are seldom found in print, although I am convinced that variations not infrequently occur. In some cases the variations are of more than technical interest, and it is in that belief I venture to describe a few I have met with in my dissections.

Fore Limb—Prehumeral Artery.—In one subject, the brachial artery in each limb did not give off the usual prehumeral artery, but at the lower border of the caput parvum a large vessel which was partly expended in the biceps. This branch sent upwards a considerable vessel to take the place of the prehumeral artery in front of the coraco humeralis muscle.

Anterior Radial Artery is frequently the subject of variations. In quite half-a-dozen subjects it did not extend more than 2 or 3 inches below the elbow joint and terminated in the muscles in front of the joint.

Terminals of Brachial Artery.—A variation was seen recently in the off fore limb of an aged chestnut mare, an ordinary dissection subject. The brachial artery ended at the usual place on the inner condyle of the humerus, and gave off two terminal branches. The one corresponding to the usual anterior radial artery was rather larger than the posterior radial artery. The latter vessel descended over the inner

side of the elbow joint, but instead of passing between the radius and internal flexor of the metacarpus it ran down under the deep fascia on the inner side of the forearm, over the superficial aspect of the flexor metacarpi internus, accompanied by a satellite vein, and about 2 or 3 inches above the pisiform bone is divided into the large and small metacarpal arteries, which were quite normal in their course and relative size.

The anterior radial artery, before passing behind the biceps in front of the humerus, detached an artery almost equal in size to the posterior radial. This unusual vessel descended on the inner side of the elbow joint, at first under, then behind the posterior radial. Then it passed behind the radius in front of the internal flexor of the metacarpus in company with the median nerve and a large vein. It descended in that position in the forearm more deeply placed than the nerve, and as it descended became gradually smaller on account of the branches which it detached to neighbouring muscles. About 3 inches above the carpus it joined an unnamed branch of the posterior radial artery. It gave off the interosseous artery of the forearm opposite the radio-ulnar arch. The course and position of the latter vessel were quite normal. The median nerve over the elbow joint and upper portion of the radius lay in front of both arteries, and was covered by one of their large satellite veins. The near fore limb of the same subject was quite normal.

Hind Limb—Saphena Artery.—In four limbs examined the posterior branch of the saphena artery was very large, and in the lower half of the leg, after it had joined the retrograde branch of the posterior tibial artery, where the combined vessel was in company with the posterior tibial nerve, it was larger than the posterior tibial artery itself. The latter vessel only formed a very imperfect S-shaped curve at the lower extremity of the tibia.

Anterior and Posterior Tibial Arteries.—The sigmoid curve of the posterior tibial artery has been almost absent in the hind limbs of about eight horses that I have examined, and two of these horses were thoroughbreds. In the off hind limb of an army remount which was used as a dissection subject, no curve was formed by the posterior tibial artery at its termination, and it simply divided into the two plantar arteries to join the tarsal arch.

The anterior tibial artery of the same subject was quite normal in its formation and position, and ended behind the extensor brevis in front of the osseous canal between the scaphoid, cuneiform magnum and cuboid, but it was continued as the perforating metatarsal artery. The large metatarsal artery, usually much the larger branch, was represented only by a very small arteriole.

The perforating metatarsal artery passed through the osseous canal already mentioned, and joined the plantar arteries behind the tarsus to form the tarsal arch. The largest of the branches from the arch in this case was the external metatarsal interosseous artery, which descended between the external small metatarsal bone and suspensory ligament. It was really the continuation downwards of the perforating metatarsal artery, and it divided a few inches above the fetlock, in the angle of separation of the two branches of the suspensory ligament, into the digital arteries. The external metatarsal interosseous artery in this case really was as large as, and took the place of, the large metatarsal artery of the normal limb.

"SOME SUGGESTIONS ON THE CONTROL OF SWINE FEVER."*

BY J. S. LLOYD, F.R.C.V.S., D.V.S.M.VICT., CHIEF VETERINARY INSPECTOR, SHEFFIELD.

NOTWITHSTANDING the statements of the Chief Veterinary Officer [1] of the Board of Agriculture and Fisheries, that, "Although the increase of swine fever is unfortunate and disappointing, it is not particularly alarming," and of the Assistant Secretary [2] of the Animals Division of the Board, that although "there is an increase of 463 outbreaks of swine fever for 1906, as compared with 1905, the results of the operations (to control the disease) conducted during last year are not, it is submitted, entirely satisfactory," there are, I feel sure, few people connected with the industry of pig breeding, or the trade of pork-butchers, or interested in the suppression of animal diseases, who will agree that the matter of controlling swine fever in pigs is anything but very unsatisfactory.

PRESENT CONDITION OF SWINE FEVER.

The following table shows this at a glance:—

Year	Counties in which disease existed	Outbreaks confirmed	Swine slaughtered as diseased or as having been exposed to infection
1901	71	3,140	15,237
1902	67	1,688	8,263
1903	63	1,478	7,933
1904	64	1,196	5,603
1905	58	817	3,876
1906	64	1,280	7,359
1907 (45 weeks) ...	64	2,139	10,247

Or if we take the returns for forty-five weeks of 1907, and compare them with those of the years 1904 to 1906, the following summary shows the position up to date:—

SUMMARY OF SWINE FEVER RETURNS.

Period	Outbreaks	Swine slaughtered as diseased or exposed to infection
Total for forty-five weeks, 1907	2,139	10,247
Corresponding period in		
1906	1,027	5,858
1905	706	3,169
1904	1,099	5,120

* A paper read at a meeting of the Lancashire Veterinary Medical Society, at Manchester, on December 5, 1907.

Before it is possible to make any suggestions on the control of swine fever it is necessary to carefully consider and analyse the conditions and measures which accelerate or retard the increase of the disease. That swine fever is a peculiar and subtle disease all will admit; even its causal organism is still a matter of some doubt. The disease is usually defined as a contagious eruptive fever caused by a microbe, and affecting swine. The results of certain investigations in America were published by the Bureau of Animal Industry, U.S.A., in March, 1905, the chief points of which are thus summarised by Stockman [3] :—

(1) That the blood of pigs suffering from the highly contagious form of hog cholera abundantly contains the infective agent.

(2) That this agent is not the *Bacillus cholerae suis* as was formerly considered to be the case.

(3) That the infective agent belongs to the class of ultra-microscopic organisms, and passes through the pores of the finest porcelain filters used in the laboratory.

(4) That pigs which recover from the disease produced by injecting the filtered blood of others suffering from hog cholera are immune against further attack.

Stockman confirms the statement that the blood of pigs suffering from swine fever has been found to be virulent after filtration through a Chamberland filter, and states that this method may be turned to account as a means of diagnosing puzzling outbreaks of the disease in which a number of animals die without showing typical lesions. Later [4] he stated that "the blood of infected pigs when injected into healthy swine, even after filtration through the finest filters, could produce the disease in the inoculated animals," and that "the inoculation method has been used more frequently to establish diagnosis where repeated visits and autopsies failed to discover so-called typical lesions on premises upon which deaths continued to take place at intervals."

CONDITIONS WHICH ACCELERATE THE INCREASE OF SWINE FEVER.

The following may be mentioned as reasons why swine fever outbreaks increase :—

(1) *Failure to Notify (Promptly, or possibly not at all) the Existence, or Suspected Existence, of the Disease when Outbreaks Occur.*—Formerly, no doubt, this was the case, in many instances being due to ignorance of the disease on the part of owners of swine. In other cases the existence of disease was wilfully concealed by owners of pigs, and particularly pig-dealers, on account of interference with pig movements, which necessarily followed notification, by reason of the suspected premises being declared swine-fever-infected places. There is probably now less reason to think that failure to notify is so common, or, at any rate, so far as wilful concealment goes. In 1903 [5] 9,458 reports of suspected swine fever were made to the Board of Agriculture, but in only 1,478 cases was the existence of disease confirmed. In 1904 the corresponding figures were 9,147 and 1,196, and in 1906, 8,837 and 1,280 respectively. It will thus be seen that the number of cases confirmed as swine fever was much smaller than the number of cases reported, being only about 15, 13 and 14 per cent. respectively.

(2) *Contact of Healthy Pigs with Diseased Swine, or their Excreta, or their Morbid Parts.*—Owing to the fact that in occult cases of swine fever

apparently healthy pigs may be affected with swine fever for several weeks, if not for some months, it can easily be seen how, through the sale and movement of such pigs, the points of infection can be rapidly multiplied. Except in very acute cases the period of incubation is generally over a week, and unless detention regulations are in force, pigs may be exposed in several markets, and split up into several lots during that time. The placing of healthy pigs in sties, lairs, market pens, pig-dealers' carts, railway trucks, &c., in which diseased pigs have been, is almost certain to convey infection, when the former case of disease was unnoticed, or where proper and adequate disinfection had not been carried out. The placing of healthy pigs with diseased ones is practically certain to be followed by an outbreak in the former. It is stated that cases have been known where a series of outbreaks have followed the visits of a castrator or spayer. The carrying of excreta from diseased pigs to healthy swine may be by means of the boots of attendants or others visiting infected places, and it is thought that the infection may be conveyed by such animals as rats, or by poultry.

(3) *Difficulty in Diagnosis.*—In young pigs the disease often takes a very acute form, death coming on rapidly without any very definite symptoms or *post-mortem* appearances. In the majority of cases, however, the pigs appear to be dull, lie under cover, squeal if moved, and stagger about. There is often great thirst, but generally loss of appetite, with at first constipation, later diarrhoea, with a fœtid or blood-stained discharge. A red rash may appear on the skin of the abdomen, inside the thighs or forearms, and on the ears. In the latter case the "tip" half of the ear is more generally affected, and the red colour has a tendency to become blue. The temperature is high, 105° F., or higher, the breathing is rapid, and a cough may be present; the animal rapidly wastes. In very chronic cases there may be few, if any, of the above symptoms present, and nothing apparent indicative of ill-health, except that the animal has a stunted or unthrifty appearance.

On *post-mortem* examination there may be some of the external signs enumerated above to be seen; internally there are usually found typical swine fever ulcers, sometimes in the stomach, more generally in the large intestines, especially in the cæcum and near the ilio-cæcal valve. In the case of very young pigs dying from the acute form of the disease, there are often no very definite lesions found on *post-mortem* examination; in many cases small hæmorrhages may be found on the mucous membrane of the larynx or trachea, or of the stomach or intestines, and in some instances in the peritoneal covering of the kidneys. Generally speaking, however, when the disease is thus present in young pigs there is one or more cases amongst older animals on the premises with which they have been in contact.

Stockman [6] deals very fully with *post-mortem* diagnosis in examining the following possibility:—"That the common methods of *post-mortem* diagnosis are faulty, and result in some premises upon which deaths have occurred being freed, although swine fever really exists thereon," and makes the following summing up:—

(1) One must not always expect to find ulceration or diphtheritic exudate in the intestines of pigs dead of swine fever, or in unthrifty-looking pigs killed on suspicion.

(2) In indefinite cases lesions of enteritis should be looked upon with grave suspicion, especially when present in an apparently sub-acute form characterised by slight congestion of the mucous membrane with superficial abrasions and sometimes punctiform hæmorrhages.

(3) Enzootic pneumonia should also give rise to suspicion, especially when the lung lesions are accompanied by enteritis or intestinal congestion.

(4) Since pigs often recover in a comparatively short time from swine fever, it is generally a mistake to leave unthrifty pigs on suspected premises in the hope that they will develop more typical lesions, and so establish the diagnosis.

(4) *Insanitary Piggeries.*—There can be no doubt but that the terribly insanitary condition of many infected piggeries must have great influence upon the persistence of infection on such premises. It must not be thought that an insanitary sty will cause an outbreak of swine fever, but once such a place, or number of places, as is often the case, become infected there is usually considerable trouble in getting rid of the infection. There is first of all the difficulty in getting such sties, often made of old bacon and sugar boxes, and such other unsuitable material, properly cleansed and disinfected. Probably in many cases nothing short of utter demolition followed by cremation would adequately meet the case. Experiments in America [7] show that the contagium of swine fever might be kept alive in clear river water for from two to four months—stagnant pools were still more dangerous—whilst it retained its power to infect if sown in moist soil for a period extending also from two to four months. When the insanitary conditions which surround many piggeries are therefore taken into consideration, can it be wondered at that in many cases recurrences of swine fever take place at intervals ranging from one to twelve months?

(5) *Defective Movement Regulations.*—There can be no doubt but that defective measures for controlling movements of swine, and the want of executive officers to successfully carry out swine movement regulations have in the past had much to do with the increase of swine fever outbreaks. Ever since the Board of Agriculture commenced to deal with swine fever in November, 1893, the officers of the Board have solicited the assistance of local authorities in carrying out regulations, dealing with the movement of swine generally, and in infected districts particularly, and with more or less success. Naturally local authorities did not at first like enforcing restrictions which were considered objectionable by agriculturalists and pig-breeders, but they gradually saw that the only way to keep the disease within anything like reasonable bounds was by hearty co-operation with the efforts of the Board. In 1901 the County Council of Cheshire adopted stringent regulations for the movement of swine, with great success, and many other counties followed suit.

MEASURES ADOPTED FOR THE CONTROL OF SWINE FEVER OUTBREAKS.

Since 1894 various orders dealing with swine fever have been made by the Board of Agriculture and Fisheries, some of which have been repealed; those mentioned below are still in force:—

(1) *Swine Fever Order of 1894.*—This Order came into force on July 24, 1894. Under Section 1 owners of pigs have to report cases of swine fever or suspected cases to the local police constable, who in turn notifies the inspector under the Diseases of Animals Acts. The inspector in turn has to notify the Board of Agriculture by telegram, and also report to the local authority. Under Section 2 he has to proceed to the suspected premises, and under Section 3 declare the premises an infected place (serve Form A); the rules for which are given in Section 4. Under Section 5 he has to grant licenses for the removal of dung, &c., from the premises, and under Section 6 he may, if necessary, prohibit the movement of pigs from neighbouring premises. Under Section 7 he may have to superintend the destruction or burial of diseased carcasses.

Cases notified to the Board by telegram are dealt with by the officers of the Board. First the Board send a veterinary inspector to the suspected premises, and for this purpose the Board have a staff of veterinary officers of about 100 in number, one-quarter of whom devote their whole time to the services of the Board, whilst the remainder are veterinary surgeons in practice who receive an annual retaining fee and special fees for services rendered when required. This arrangement may be best for the Board, but is not in favour with the majority of the veterinary profession.

Should the veterinary inspector visiting the suspected premises diagnose swine fever, he reports so to the Board and forwards the *post-mortem* specimens upon which he bases his diagnosis to the chief veterinary officer of the Board for confirmation. The further procedure in connection with the outbreak, such as dealing with the remaining pigs on the premises, disinfecting the latter, &c., devolve upon one of the travelling lay inspectors of the Board.

(2) *Swine Fever Order of 1901.*—This order came into operation on October 14, 1901, and deals with the cleansing and disinfection of (a) lairs, &c., used for swine; (b) pig-dealers' premises, and (c) vehicles, crates, &c., used by dealers. It empowers local authorities to enforce the Order, and to do the work in case of default at the expense of the defaulters.

(3) *Swine Fever (Infected Areas) Order of 1902.*—This Order came into operation on November 1, 1902, but only applies to any particular area to which it may be applied by a special order of the Board. At the present time it is in force in fourteen counties. It more particularly deals with the movement of swine in areas in which swine fever is very prevalent, and invariably the application of this Order has considerable influence in reducing the number of outbreaks of swine fever in such areas.

(4) *Swine Fever (Movement from Ireland) Order of 1904.*—This Order came into operation on January 23, 1905, and primarily dealt with all movement of swine from Ireland (but has since been modified as to store pigs by the Swine Fever [Movement from Ireland] Order of 1906). It provides for the landing in Great Britain of Irish pigs for immediate slaughter. Pigs have to be licensed by an officer of the Department of Agricultural and Technical Instruction for Ireland, and have to be marked, &c. Pigs so licensed may be taken direct to a bacon factory or slaughterhouse, or to a lair, market or saleyard, specially authorised for that purpose by the local authority. Such swine can

only be moved from the lair, market or saleyard to a bacon factory or slaughterhouse, and on a movement licence granted by an inspector of the local authority. All swine moved either directly or indirectly under the Order to a bacon factory or slaughterhouse have to be killed there and must not be removed elsewhere.

(5) *Swine Fever (Movement from Ireland) Order of 1906.*—This order came into operation on March 1, 1906, and allows the movement of store pigs from Ireland into Great Britain on a licence granted as in the 1904 Order, but only upon a declaration made and signed by the occupier of the premises from which the pigs are to be moved, and countersigned by a police officer of the district, and by a further declaration made and signed by the applicant for the licence. The first declaration declares that the pigs have been on the premises for twenty-eight days, that during such period they have not been exposed to the infection of swine fever, and that their movement is not prohibited by any notice from an officer of the central or local authority in Ireland. The second declaration declares that the swine to be moved are those mentioned in the first declaration, and that they have not been exposed in any market, fair, or saleyard, or been in contact with other swine. Swine moved into Great Britain under this order have to be kept separate from other swine, moved direct to the place mentioned in the licence, and there detained and isolated for a period of twenty-eight days.

(6) *Swine Fever (Regulation of Movement) Order of 1903.*—This Order was made by the Board on September 2, 1903, but it only applies to areas, counties or groups of counties scheduled by subsequent Orders of the Board. It was first applied to Glamorganshire, the Isle of Wight and Monmouthshire. It is now in operation in eighty-two administrative counties in Great Britain. It will thus be seen that it is a very important part of the operations against swine fever put in force by the Board, and demands more than a passing consideration. It consists of seventeen Articles, as follows:—

Article 1 deals with its application to "scheduled areas."

Article 2 restricts the movement of swine into the scheduled area.

Article 3 provides for the latter movement with a licence granted by an inspector of the local authority upon a declaration signed by the owner of the swine (or the agent), and countersigned by the police of the district from which the swine are to be moved. The declaration is to the following effect: That the declarer is the owner or agent, that the swine have been on the premises twenty-eight days, that they have not been exposed to the infection of swine fever, and that the movement is not prohibited by any notice of an officer of the Board or of the local authority. The declaration is kept by the inspector granting the licence, and the latter is in force for six days.

Article 4 deals with the pigs after arrival at destination. Swine moved to private premises have to be detained and isolated for twenty-eight days; the carcass of a pig may, however, be removed. If the pigs are moved to a market, fair, saleyard, or exhibition, they can only be moved again with a licence granted by the local authority to a bacon factory or slaughterhouse, where they have to be killed, and a copy of the licence has to be sent to the local authority where the bacon factory or slaughterhouse is situated.

Articles 5 deals with movement of swine into the scheduled area for immediate slaughter on a licence granted by an inspector of the district where the lair, market, saleyard, slaughterhouse, or bacon factory is situate. The following conditions have to be observed: The swine have to be marked, moved by railway as far as practicable, and kept separate from swine not marked. If moved to a lair, market or saleyard the swine can only be moved again to a bacon factory or slaughterhouse with a licence granted by an inspector of the local authority where the lair, market or saleyard is situate. Swine moved under this Article either directly or indirectly to a bacon factory or slaughterhouse must be there detained until they are slaughtered. All lairs, markets or saleyards have to be specially authorised by the local authority, and a copy of the special authority sent to the Board.

Article 6 deals with the cleansing and disinfection of lairs, markets and saleyards.

Article 7 provides for the movement between two scheduled areas. Swine may be moved from a lair, market, saleyard, fair, or exhibition in one scheduled area to a bacon factory or slaughterhouse in another scheduled area with the licence granted at the lair, &c. (but it would appear that a copy of the licence has not to be sent to the receiving local authority as under Article 4).

Article 8 deals with the giving up of licences after completion of the movement.

Article 9 states the general provisions as to movement, viz., that the swine whilst being moved shall be kept separate from other swine, shall be moved by the nearest available route, and taken without unnecessary delay to the place of destination specified in the licence and not elsewhere, and that the Order does not authorise movement in a swine-fever-infected place or swine-fever-infected area, or where movement is prohibited by an officer of the Board or the local authority or by any other order of the Board.

Article 10 removes the application of any local regulation made by a local authority in a scheduled area, so far as the movement of swine under this Order into or within the district is concerned, but not otherwise.

Article 11 provides for the movement of swine through a scheduled area by railway.

Article 12 provides for the movement of Irish swine through a scheduled area.

Article 13 deals with the production of licences to police, &c., if demanded.

Article 14 states that the Order shall be enforced by the local authority.

Article 15 deals with offences under the Order.

Article 16 gives the usual interpretation.

Article 17 gives the title of the Order.

From the foregoing it will be seen that the operations of the Board of Agriculture against swine fever are mainly carried on under three Orders; The Swine Fever Order of 1904, the Swine Fever (Infected Areas) Order of 1902, and the Swine Fever (Regulation of Movement) Order of 1903.

SUCCESS OR FAILURE OF SWINE FEVER ORDERS.

It may, generally speaking, be granted "that when once the provisions of the Swine Fever Order of 1894 have been put into force, the risk of the escape of infection from the premises on which disease has been detected is relatively small" [8]. That is the experience of the Assistant Secretary of the Board, and the writer's experience is in total agreement with it. The Swine Fever (Infected Areas) Order of 1902 is stated to be equally valuable in dealing with districts in which numerous cases of swine fever have simultaneously occurred. "Swine fever reappeared in Cumberland in 1905. No fewer than thirty-seven outbreaks occurred within a comparatively limited area, but by means of the application of the Swine Fever (Infected Areas) Order of 1902, and of the energetic action of the officers, both of the Board and of the local authority, the disease in that county appears to have been again stamped out" [9]. In other parts of the country it appears to have been equally successful.

Before dealing with the success or failure of the Swine Fever (Regulation of Movement) Order of 1903, it will be well, perhaps, to lightly trace its history.

In the report of the Assistant Secretary, Animals Division of the Board of Agriculture, 1901, it is stated that "the increase of disease was mainly due to strenuous resistance offered by local authorities and stock-owners throughout the country, to the general restrictions which had brought about a considerable decrease of the disease towards the fall of the preceding year, &c."

In a similar report for 1902 it is stated: "All experience goes to show that in operations against contagious diseases in animals the best results are obtained by means of the restriction and regulation of the movement of animals likely to have been exposed to the infection of the disease; and in swine fever it has been found that a very large measure of safety is secured where the movement of swine from district to district is confined to those which have been in the same ownership for twenty-eight days before movement, it being a condition of such movement that on arrival at their destination the swine are detained, and as far as possible kept isolated from other swine, for a further period of twenty-eight days."

It also states that local authorities have power to adopt such regulations, and instances the benefits derived therefrom by the counties of Cheshire and Somerset, in view of which facts the Board determined to recommend generally to local authorities action on similar lines, and by the close of the year (1902) the large majority of local authorities in England, Wales and the South of Scotland had decided to adopt regulations framed on those lines (same as in Cheshire, &c.) [10].

In the report for 1903 appears the following: "The report of last year sets out the steps taken to press upon local authorities the desirability of adopting regulations designed to protect their districts from the spread of swine fever if introduced by means of pigs brought from other districts.

"In the meantime local authorities have proved more and more ready to acquiesce in the policy of protecting their districts from the spread of disease by means of regulations requiring the detention

under observation of pigs moved into their districts. It is to their action in this direction that a proportion of the credit of the diminished number of outbreaks of disease must be given."

It was also stated that the regulations were excellent, but in some districts the machinery for carrying them out was found to be defective, and went on to state: "The Swine Fever (Regulation of Movement) Order of 1903, like local regulations of the character above described, is designed to regulate the movement of swine into a district in such a manner as to reduce to a minimum the risk of the spread of swine fever by the introduction into such district of swine from without, and has been framed so as to be applicable to the districts of more than one local authority in a manner which will admit of the free movement of swine from place to place within the whole area scheduled."

In the report for 1904 appeared the following: "It may be asserted with some confidence that the present satisfactory position is in a very great measure due to the action taken by the local authorities generally upon the lines suggested in this circular letter, and there can be but little doubt that if the present policy is steadily maintained a further improvement in the position may reasonably be looked for. At the same time, it is hoped that the plan of grouping districts of local authorities together and placing the areas thus scheduled under the provisions of the Swine Fever (Regulation of Movement) Order of 1903 may be gradually developed in such a manner as to mitigate the severity of the general restrictions in localities in which this can with reasonable safety be accomplished."

In the report for 1905 the following paragraphs appeared: "A careful review of the present position as regards this disease has led the Board to the opinion that the time has now arrived when it is desirable that the policy of grouping together the districts of local authorities for the purposes of restrictions relating to the movement of swine, outlined in paragraphs 20 to 22 of their circular letter (A 114/C) to local authorities of January, 1904, and alluded to on p. 16 of the report for 1904, should be further developed.

"The effect of the application of the Swine Fever (Regulation of Movement) Order of 1903 to a county or group of counties, and to the boroughs comprised therein, coupled with the suspension of existing local regulations, is to permit of the free movement of swine throughout the entire area, whilst prescribing in the case of the movement of swine into any part of the area the adoption of certain precautionary measures designed to prevent the spread of swine fever. Uniformity within the combined district is thus, so far as possible, ensured, and, as regards the danger of the reappearance and spread of swine fever in the area, it is contemplated that general restrictions on the movement of swine over areas forming part of a combined district shall at once be imposed where such a course appears necessary for the prevention of the spread of the disease. It is of fundamental importance that restrictions of such a character, though not necessarily applied to areas so limited as those of single counties, should be maintained throughout the country for some considerable period. The Order has already been applied to a considerable number of areas of varying extent."

In January, 1906, another circular letter (A 135/C) was sent out

to local authorities, stating that "The time has now arrived when it is desirable that the policy of grouping together the districts of local authorities for the purposes of restrictions relating to the movement of swine should be further developed," and that "the [then] present hopeful position has largely been brought about by the continued enforcement of the general restrictions upon the movement of swine imposed by the operation of the Swine Fever (Regulation of Movement) Order of 1903, or by similar restrictions embodied in the regulations made by local authorities"; further stating that "they [the Board] propose to extend considerably the application of the Swine Fever (Regulation of Movement) Order of 1903 to groups of counties in the near future," "the effect of which is to permit the free movement of swine throughout the entire area, whilst prescribing in the case of movement of swine into any part of the area the adoption of certain precautionary measures designed to prevent the spread of swine fever."

The result of the action indicated above was to increase the number of areas scheduled under the Order from thirteen in January, 1906, to twenty-seven at the present time, November, 1907, and the counties affected from forty-four to eighty-two.

Has the policy of the Board as outlined above been successful? In the report for 1906 the Assistant Secretary describes the situation as follows:—

"In the earlier part of the year under review some further steps were taken in the direction of applying the Swine Fever (Regulation of Movement) Order of 1903 to groups of counties so as to permit of greater freedom in the movement of swine between districts in which it appeared that the position as regards disease would allow of this being done with safety, whilst maintaining in force throughout the combined area the precautionary measures necessary to guard against a general epidemic of swine fever. It soon became apparent, however, that this policy could not at the moment be proceeded with without running the risk of losing the ground that had already been gained, and in some instances the freedom of movement already accorded had temporarily to be curtailed. During the latter portion of the year the development of the Board's policy in this matter was perforce suspended until such time as will allow of a full appreciation of the position entailed by the increase in the number of outbreaks of swine fever which unfortunately continues. It has been possible, however, to effect some adjustments in the groups of counties to which the Order above mentioned has already been applied, and also to take some further steps in the direction of securing uniformity in the requirements of movement regulations by applying the Order to individual counties with, in some cases, special provisions as regards the movement of swine within the whole, or over certain portions of the county. The substitution of such an Order for the regulations made by the various local authorities is attended with benefit to persons concerned in the movement of swine, who can thus more readily master the purport of the necessary restrictions, and it is probable that the application of such Orders could with advantage be extended."

A glance at the following table shows what has happened in some of the areas scheduled under the Order, also giving the date when the Order was put into force:—

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Area	Date of Order	Swine Fever Outbreaks				Forty-five weeks in 1907
		1903	1904	1905	1906	
Glamorgan ...	September 14, 1903	0	0	28	25	43
Isle of Wight ...	" 15, 1903	0	0	1	17	46
Monmouth ...	" 14, 1903	0	0	4	13	21
Derby and Notts	January 1, 1906	33	21	23	11	25
		25	25	3	3	54
Yorks, E. R. ...	March 15, 1906	101	44	27	121	*23
Yorks, W. R. ...		191	96	72	100	164
Wilts ...	January 1, 1907	11	24	31	55	106
Hants ...	October 1, 1904	25	13	22	63	103
Cheshire ...	Not under the Order	31	21	28	38	31

* Parts of Yorks, E. R., were under the Swine Fever (Infected Area) Order of 1902, from April 2, 1903, to November 3, 1906, which probably accounts for the decrease in the number of outbreaks in 1907.

The above counties were taken for the following reasons: Glamorgan, Isle of Wight and Monmouthshire because they were the three first to be scheduled under the Order; Derby and Notts and Yorks (East and West Ridings) because they markedly influence the pig trade of Sheffield, and probably the existence of swine fever there; Wilts and Hants because they had been under the Order, the former recently, the latter a considerable time, and both had large numbers of outbreaks in 1906; Cheshire because it has not been under the Order at all, and simply for comparison, as showing what a local authority can do to control the outbreaks of swine fever by means of its own local regulations, which I understand have been in force since July, 1901.

From the above figures it will be seen that whilst the disease has practically been kept under control in Cheshire, the figures being thirty-one outbreaks for 1903 and the same number for forty-five weeks in 1907, the corresponding figures for the other areas almost invariably show an increase, the total outbreaks for 1903 being 386, whilst those for forty-five weeks of 1907 are no less than 585; or, taking the whole country, the total outbreaks for forty-five weeks in 1903 were 1,298, as compared with 2,139 for the same period in 1907. Judging by the above figures one is forced to the conclusion that the policy of the Board of Agriculture in dealing with the disease of swine fever has not been successful.

SUGGESTIONS FOR THE CONTROL OF SWINE FEVER.

In offering any suggestions for the control of swine fever, it must not be thought that the veterinary profession condemns altogether the policy of the Board in the past. Most members of the profession recognise the difficulties such a disease as swine fever presents, and which have to be tackled and surmounted before any measure of success can be hoped for; and in presenting the suggestions which follow for discussion at this meeting of veterinary surgeons, it is with the hope and trust that the result of the discussion which ensues will be some tangible suggestions which can be sent to the Board for their acceptance or rejection, but with every desire to assist the Board in

its difficult battle with swine fever. At the same time, any suggestions or line of action agreed upon ought to be forwarded to the different chambers of agriculture and to the editors of agricultural journals. In this way the matter will be well thrashed out, and no doubt other suggestions made, and it is hoped that out of the multitude of counsellors there will come wisdom.

To sum up the situation very shortly, it appears to the writer, judging from his investigations into the policy of the Board and his experience as chief veterinary inspector of a large city where there is a considerable pig population, and where he has complete control of all executive work done under the Diseases of Animals Acts, including inspectorial work under the Swine Fever Orders, and supervision of all regulations relating to the movement of swine, that some action on the following lines will have to be taken before success can be looked for in dealing with the control of swine fever:—

(1) The addition of an article in the Swine Fever Order of 1894 providing for the presumption of knowledge of disease (swine fever) on the part of owners of swine, similar to that in the Anthrax Order of 1899. This would probably have the effect of earlier notification of suspected cases of swine fever, and would lead owners of swine to call in veterinary assistance when they have pigs which are not healthy, or appear to be unthrifty.

(2) Compulsory notification by veterinary surgeons, with payment by central authority of a small notification fee. This would assist the Board by preventing owners of pigs getting rid of their pigs after being informed of suspicious cases by their veterinary advisers, and would prevent wilful concealment in such cases.

(3) Compulsory slaughter of all diseased and in-contact pigs on infected premises, with compensation payable by the Board. The Board now occasionally isolates for three months, but the writer thinks no pigs ought to be moved alive from such premises.

(4) Complete disinfection of infected premises—destruction by burning, if necessary—by properly qualified officers of local authorities. This is now done by the occupiers of the premises, under the supervision of the lay inspectors of the Board. The writer thinks this work would be done more completely by men specially qualified by experience to do the work, the cost to be paid by the Board.

(5) Stoppage of further occupation of infected premises by swine for at least four months. It is well known that fresh fuel keeps up a fire, and fresh swine on a recently infected place are very likely to become affected, provided there is any infection about, and thus keep the disease alive.

(6) Formation of infected circle around each infected place. This need not be large, but should include all swine, say, within a radius of 400 yards. It should be done by posting up an order and serving a copy on each occupier, prohibiting movement, stating the infected premises, and warning off trespassers. It should be kept on for at least two months after the date of the last outbreak in the circle, and should only be withdrawn after a special veterinary inspection has been made of all pigs within the circle and a report to the effect that the pigs are healthy. It should not prevent movement of pigs or carcasses to a slaughterhouse or dwelling-house with a licence.

(7) Formation of infected area where numerous outbreaks occur

in a comparatively small area. This is now done by the Board and ought to be continued on the same lines as at present.

(8) Repeal of the Swine Fever (Regulation of Movement, Order of 1903, and formation of an order prohibiting movements of swine generally throughout the country except by licence. The latter should be granted on certain simple, uniform and easily applied conditions. The writer thinks the period of detention should be extended to fifty-six days in the case of store pigs, as he is convinced from experience of actual outbreaks that twenty-eight days is too short a period to prevent the introduction of swine fever to premises previously free from disease. (A draft form of suggested Swine Fever (General Movement) Order is printed at the end of this paper.)

(9) A complete register of all licences issued to be kept by local authorities, and all declarations and movement licences to be kept for at least six months before being destroyed. By these means all legal movements of swine in any particular district could be easily traced for a period of at least six months, and would be of immense value in tracing back the origin of swine fever outbreaks.

(10) Registration by local authorities of all pig-dealers in their districts. Only men of good character, with clean and properly constructed piggeries, should be registered, and commission of any offence against Swine Fever Orders or Regulations should warrant withdrawal of the registration.

(11) Licensing by local authorities of all fairs, markets, sales, lairs, saleyards, or exhibitions. All movements of pigs to or from to be by licence in accordance with the Swine Fever (General Movement) Order.

(12) Regular, systematic and complete disinfection of all markets, fairs, saleyards, lairs, &c., to be carried out by officers of the local authorities at the expense of the owners, lessees or occupiers, as the case may be.

(13) Compulsory and regular inspection of all markets, lairs, &c., by the properly appointed veterinary inspectors to the local authorities.

No doubt it will appear to many that considerable hardship and inconvenience would ensue if general restrictions and regulations on the lines suggested above were enforced. The writer would only answer in reply, that no contagious disease of animals ever known has so far been eradicated without someone having to suffer—*i.e.*, rabies as the latest disease stamped out—and surely it is better to put up with some temporary inconvenience if there is any likelihood of deriving a permanent benefit thereby.

The mistaken policy of the Board in the past seems to have arisen chiefly from a desire to please everybody. It cannot be done with success. The result during the last two years has been to increase the outbreaks of swine fever and to decrease the number of pigs, at the same time spending yearly about £50,000 of public money.

REFERENCES.

- [1] [2] [4] [6] "Annual Report of Proceedings of Board of Agriculture for 1905."
[3] Report for 1905.
[5] Reports for 1903, 1904, and 1905.
[7] [10] Report for 1902.
[8] [9] Report for 1903.

Draft Form of Suggested Swine Fever (General Movement) Order.
NUMBER ().

ORDER OF THE BOARD OF AGRICULTURE AND FISHERIES.

(Dated 190).

SWINE FEVER (GENERAL MOVEMENT) ORDER OF 190 .

THE Board of Agriculture and Fisheries, by virtue and in exercise of the powers vested in them under the Diseases of Animals Acts, 1894 to 1903, and of every other power enabling them in this behalf, do order, and it is hereby ordered, as follows:—

1.—APPLICATION OF ORDER.

This Order shall apply to the movement of swine in all parts of Great Britain, except in regard to movement to or from premises declared an infected place, in an infected circle, or in an infected area.

2.—RESTRICTION ON MOVEMENT.

Swine, with the exceptions mentioned above, shall not be moved in any part of Great Britain except in accordance with this Order.

3.—PROVISION FOR MOVEMENT WITH LICENCE.

(1) Swine may be moved from any premises to any other premises in Great Britain if accompanied by a licence authorising such movement, granted by an inspector of the local authority of the district in which the place of destination specified in the licence is situate.

(2) Before a licence is granted by an inspector under this Article, the owner of the swine, or his agent authorised in writing for this purpose, shall sign, and deliver or send by post to the inspector, a declaration, countersigned as hereinafter provided, to the effect:

- (i.) That he is the owner of [*or* the agent authorised in writing for this purpose by the owner of] the swine;
- (ii.) That the swine have been on the premises from which they are to be moved for a period of at least fifty-six days immediately before the date of the declaration;
- (iii.) That to the best of his knowledge and belief the swine are in good health, and are not affected with swine fever, and have not during the period of fifty-six days, as aforesaid, been in any way exposed to the infection of swine fever; and
- (iv.) That the swine are not in a swine fever infected place, infected circle, or infected area, and that the movement of the swine is not prohibited by notice of an inspector of a local authority or of the Board given under any Order of the Board.

(3) The declaration as to swine to be moved shall not be effective until it is countersigned by a police officer of the district where the swine are, who, before countersigning the declaration, shall, so far as is practicable, satisfy himself as to the correctness of the statements contained therein.

(4) The declaration shall be retained by the inspector granting the licence thereon.

(5) The licence shall be in force for six days, inclusive of the day of issue, and shall specify the name and address of the person to whom the licence is granted, the number of the swine to be moved, and the name or description of the place from which, and the place and premises to which, the swine are to be moved.

4.—DETENTION AND ISOLATION AFTER ARRIVAL AT DESTINATION.

(1) Swine moved with a licence under the preceding Article shall not, for a period of fifty-six days after arrival at the place of destination specified in the licence, be moved from such place of destination, except as hereinafter provided. The swine, while detained under this Article, shall be kept separate from all other swine. This provision does not restrict the removal of any carcase of a pig.

(2) (i.) Where swine are moved with a licence under the preceding Article to a market, fair, saleyard, or exhibition specified in the licence, the swine shall only be moved from such premises if accompanied by a licence authorising such movement granted by an inspector of the local authority of the district in which the market, fair, saleyard, or exhibition is situate. The licence shall state the name and address of the person who moved the swine into the market or saleyard, and the number and description of the swine to be moved, and shall contain a description of the market or saleyard from which, and of the premises to which, the swine are to be moved.

(ii.) The swine shall be moved to the place of destination specified in the licence and not elsewhere, and shall be there detained and isolated from other swine for fifty-six days, unless they are slaughtered on such premises before the expiration of that period, or unless they are again moved as hereinafter provided. During the movement the swine shall so far as is practicable be kept separate from all swine not being moved with a licence under this Article.

(iii.) A copy of a licence granted under this Article shall be sent by the inspector granting the same to the local authority of the district in which is situate the place of destination specified in the licence.

(iv.) After completion of the movement the licence shall forthwith be delivered up at, or sent by post to, the nearest police-station in the same district by the person in charge of the swine at the time of completing such movement.

(3) (i.) Where swine are moved under this Article to a private premises (not being a lair, market, saleyard, or fair), if such swine have been isolated in accordance with Section (1) of this Article such swine may at any time be moved to a market, fair, saleyard, or exhibition, if accompanied by a licence, authorising such movement, granted by an inspector of the local authority of the district in which such private premises are situate. Before a licence is granted by an inspector under this Article, the owner of the swine, or his agent authorised in writing for this purpose, shall sign, and deliver or send by post to the

inspector, a declaration countersigned as hereinafter provided, to the effect.

- (a) That he is the owner of (or the agent authorised in writing for this purpose by the owner of) the swine.
 - (b) That such swine have been on the premises from which they are to be moved for a period of days immediately preceding the date of declaration.
 - (c) That such swine are in good health, and not affected with swine fever, and have not, during the aforesaid period of days, been in any way exposed to the infection of swine fever.
 - (d) That the movement of such swine is not prohibited by notice from an inspector of the Board of Agriculture, or an inspector of the local authority.
- (ii.) Such swine shall only be moved from such market, fair, sale, or exhibition, with a licence granted in accordance with Section (2) of this Article, and only to the premises from which they had been previously moved to such market, fair, or sale; or to a bacon factory or slaughterhouse specified in the licence, where the swine after their arrival shall be detained until they are slaughtered.
 - (iii.) A copy of a licence for movement from a market, fair, saleyard, or exhibition, shall be sent by the inspector granting the same to the local authority of the district in which is situate the destination, bacon factory, or slaughterhouse specified in the licence.

(4) Where swine are moved to a private premises in accordance with this article such swine may at any time be moved from such premises to any other premises for breeding purposes if accompanied by a licence granted in accordance with Section (3) of this Article. Such licence shall give the name of the owner of the swine to be moved, and the description of the premises from which and to which the swine are to be moved; it shall be available for three days, and shall also apply to the return journey.

5.—MOVEMENT FOR IMMEDIATE SLAUGHTER.

(1) Swine may be moved from any premises to a bacon factory or slaughterhouse, or to any lair, market, or saleyard specially authorised to be used for such purpose by the local authority of the district, if accompanied by a licence authorising such movement granted by an inspector of the local authority of the district in which the bacon factory, slaughterhouse, lair, market, or saleyard shall be situate, and subject to the following conditions, namely:—

- (i.) The swine shall be marked by and at the expense of the owner by the painting with an indelible composition of red colour of a broad line down the back, and another broad line across the loins of each of the swine, thus +, each line being not less than 9 inches long;
- (ii.) The swine shall, so far as is practicable, be moved by railway, and during such movement shall not be permitted to come in contact with swine not marked under this Article;
- (iii.) Swine moved under this Article to any lair, market, or

saleyard shall only be moved therefrom if accompanied by a licence authorising such movement granted by an inspector of the local authority of the district in which the lair, market, or saleyard shall be situate, and only to a bacon factory or slaughterhouse specified in the licence, and such movement shall be subject to the conditions of this Article as to marking and movement; and

- (iv.) Swine moved under this Article to a bacon factory or slaughterhouse shall after their arrival thereat be there detained until they are slaughtered;
- (v.) A copy of every special authority for the use of any lair, market, or saleyard shall be forthwith sent to the Board by the local authority granting the authority;
- (vi.) A copy of a licence granted under Section (1) (iii.) of this Article shall be sent by the inspector granting the same to the local authority of the district in which is situate the place of destination specified in the licence.

(2) In the case of swine consigned from Ireland to any bacon factory, slaughterhouse, lair, market, or saleyard in Great Britain, the licence authorising such movement required by this Article shall be a licence signed by an inspector or other officer duly authorised in that behalf by the Department of Agriculture and Technical Instruction for Ireland.

(3) For the purposes of this Article the expressions "market" and "saleyard" shall include "part of a market" and "part of a saleyard."

6.—CLEANSING AND DISINFECTION OF LAIRS, MARKETS AND SALEYARDS.

(1) Any lair, market, or saleyard used for the purposes of the preceding Articles shall, as soon as practicable after being used for such purposes, and before being again so used, be cleansed and disinfected as follows:

- (i.) The premises shall be thoroughly scraped or swept, and such parts thereof as permit of the same being effectually cleansed by washing shall be so cleansed;
- (ii.) After such cleansing the premises shall be thoroughly sprinkled with a solution of carbolic acid and limewash, containing not less than 5 per cent. of actual carbolic or cresylic acid;
- (iii.) All pens, hurdles and fittings used in connection with the market or sale shall, as soon as practicable after being used for such purpose, and before being again so used, be cleansed by scraping and washing, and after such cleansing shall be thoroughly sprinkled with a solution of carbolic acid and lime-wash as prescribed above; and
- (iv.) The scrapings and sweepings shall forthwith be well mixed with quicklime and be effectually removed from contact with animals.

(2) The cleansing and disinfection required by this Article shall, in the case of any lair, market or saleyard in the occupation of any person, be carried out by that person, and in any other case be carried out by the local authority of the district.

(3) The Board may, by licence, modify the requirements of this Article in respect of any lair, market, or saleyard.

7.—MOVEMENT BETWEEN THE DISTRICTS OF TWO LOCAL AUTHORITIES.

In the case of swine moved with a licence under Article 5 of this Order from any market, fair, saleyard, exhibition, or lair to a bacon factory or slaughterhouse in the district of another local authority, no licence shall be required to be granted by an inspector of the local authority of the district in which the bacon factory or slaughterhouse is situate authorising the movement into such last-mentioned district, but a copy of the licence shall be sent as provided for in Article 5 (1) (vi.) of this Order.

8.—LICENCES AFTER COMPLETION OF MOVEMENT.

(1) Where swine are moved with a licence under this Order to any market, fair, saleyard, exhibition, or lair, the licence shall be delivered up in exchange for the licence for movement of the swine from such premises.

(2) Where swine are moved with a licence under this Order to any premises other than a market, fair, saleyard, exhibition, or lair, the licence shall forthwith after completion of the movement be delivered up at, or sent by post to, the nearest police station in the same district by the person in charge of the swine at the time of completing the said movement.

9.—GENERAL PROVISIONS AS TO MOVEMENT.

(1) Swine, while being moved under this Order, shall, so far as is practicable, be kept separate from all other swine, and shall be moved by the nearest available route and without unnecessary delay to the place of destination specified in the licence, and not elsewhere.

(2) This Order does not authorise movement of swine in a swine-fever-infected place, or in or through a swine-fever-infected circle or swine-fever-infected area, or of swine the movement of which is prohibited by any other Order of the Board or by notice of an inspector of a local authority or of the Board given under any such Order.

10.—PROVISIONS AS TO LOCAL REGULATIONS.

Regulations made by the local authority of any district as to movement into or within their district shall not apply to any movement of swine regulated under this Order; but the movement of swine under this Order is subject to all other regulations made by a local authority under any Order of the Board for prohibiting or regulating the movement of swine.

11.—PROVISION FOR MOVEMENT THROUGH INFECTED AREA OR CIRCLE.

For the purposes of this Order, swine shall not be deemed to be moved into an infected area or infected circle in any case where they are moved through such area or circle by railway from a place outside the area or circle to another place outside the area or circle without unnecessary delay and without the swine being untrucked or re-booked within the area or circle.

12.—PROVISION FOR MOVEMENT OF IRISH SWINE THROUGH INFECTED AREA.

Swine landed in an infected area shall not for the purposes of this Order be deemed to be moved into such area, if they are consigned from Ireland to a place of destination outside the infected area, but swine so landed shall be moved from the landing-place forthwith by the most direct route to the nearest available railway station from which the swine can be moved to the place of destination to which they are so consigned, and forthwith moved by railway out of the infected area to their place of destination.

13.—PRODUCTION OF LICENCES; NAMES AND ADDRESSES.

(1) Any person in charge of a pig being moved, where under this Order a licence is necessary, shall, on demand of a Justice, or of a constable, or of an inspector or other officer of the Board or of a local authority, produce and show to him the licence, if any, authorising the movement, and shall allow it to be read and a copy of or extract from it to be taken by the person to whom it is produced.

(2) Any person so in charge shall, on demand as aforesaid, give his name and address to the Justice, or constable, or inspector or other officer.

14.—LOCAL AUTHORITY TO ENFORCE ORDER.

The provisions of this Order shall be executed and enforced by the local authority.

15.—OFFENCES.

(1) If a pig is moved in contravention of this Order, the owner of the pig, and the person for the time being in charge thereof, and the person causing, directing, or permitting the movement, and the person moving or conveying the pig, and the consignee or other person receiving or keeping it knowing it to have been moved in contravention as aforesaid, and the occupier of the place from which the pig is moved, shall, each according to and in respect of his own acts and defaults, be deemed guilty of an offence against the Act of 1894.

(2) If a person in charge of a pig being moved, where under this Order a licence is necessary, on demand made under this Order, fails to give his true name and address, or gives a false name or address, he shall be deemed guilty of an offence against the Act of 1894.

(3) If any person fail to deliver up or send a licence, as required by this Order, he shall be deemed guilty of an offence against the Act of 1894.

(4) If a pig is not isolated as required by this Order, the owner of the pig, and the person for the time being in charge thereof, and the occupier of the place where the pig is detained, shall, each according to and in respect of his own acts and defaults, be deemed guilty of an offence against the Act of 1894.

(5) If a pig is not marked as required by this Order, the owner, consignee, or other person for the time being in charge thereof shall, each according to and in respect of his own acts and defaults, be deemed guilty of an offence against the Act of 1894.

(6) If any person, with a view unlawfully to evade or defeat the operation of this Order, by washing, or in any other manner, takes out,

effaces, or obliterates, or attempts to take out, efface, or obliterate, any mark painted on any pig as required by this Order, the person doing the same, and the person causing, directing, or permitting the same to be done, and the owner of the pig, and the person for the time being in charge thereof, shall, each according to and in respect of his own acts and defaults, be deemed guilty of an offence against the Act of 1894.

(7) If anything is omitted to be done as regards cleansing or disinfection in contravention of this Order, the occupier of any place in or in respect of which the same is omitted shall, according to and in respect of his own acts and defaults, be deemed guilty of an offence against the Act of 1894.

16.—INTERPRETATION.

In this Order, unless the context otherwise requires—

“Bacon factory” means premises in which the business of a curer of bacon is carried on :

“Slaughterhouse” means any premises where animals are habitually slaughtered :

“Person” includes any body of persons corporate or unincorporate :

“Inspector” includes veterinary inspector :

“The Board” means the Board of Agriculture :

“The Act of 1894” means the Diseases of Animals Act, 1894.

17.—SHORT TITLE.

This Order may be cited as the Swine Fever (General Movement) Order of 190 .

In witness whereof the Board of Agriculture have hereunto set their Official Seal this day of , one thousand nine hundred and .

Assistant Secretary.

NOTES ON THE THERAPEUTIC USES OF APHRODINE (YOHIMBINE SPIEGEL) IN THE TREATMENT OF IMPOTENCE.

BY O. A. ELIAS, F.C.S., WALLER ROAD, NEW CROSS, S.E.

WITH full allowance for the scepticism which is accorded therapeutic agents comprising aphrodisiacs, the recent introduction of aphrodine (Yohimbine Spiegel) into this country arouses a high degree of interest, and the successful results based on the investigations of Professor Mendel, Privy Medical Councillor Eulenburg (Berlin), Professor Bartholow (Philadelphia), Professor Krawkow (Russia), Professor Barucco (Bologna), Drs. Loewy and Müller, R. Topp, H. Thoms, and others cannot but awaken confidence in the value of the alkaloid in the treatment of aphoria or impotence. Indeed, in human and veterinary practice aphrodine appears to be steadily gaining recognition in England, and my only apology for compiling this article arises from the fact that there is an evident demand for authentic reports and data concerning its chemical and physiological properties for the guidance of those who have not the time or opportunity for reading foreign literature. Previously, all that could be attempted in medicine, it is affirmed,

was to increase the tone of the body generally, whilst aphrodine is found to act specifically on the generative system. It is an alkaloid from the Yohimbehe bark, first isolated, in 1895, by Dr. R. L. Spiegel, lecturer at the Pharmacological Institute of the University of Berlin. This is known on the Continent as Yohimbine Spiegel; it was also prepared by Professor Thoms, and reported in "The Proceedings of the Twelfth International Congress," vol. ii. Gilg and Schumann [1] have shown that the Yohimbehe tree belongs to the family of *Rubiaceae*, which, besides other valuable products, furnish Peruvian bark (quinine). Its aphrodisiac powers have long been known to the natives of the Cameroons. The explorer, Ludwig Scholz, reports that they use decoctions of the bark.

Aphrodine (Yohimbine Spiegel) crystallises in prismatic needles with a silky gloss, and has the formula $C_{22}H_{33}N_2O_3$, according to Spiegel. It melts at 234° C. and can easily be dissolved in alcohol, ether, acids, but not in water. In the free state it gradually changes under exposure to air and light, and assumes a yellowish tint. On the other hand, it keeps well in form of the hydrochloride. In both sexes it causes dilatation of the blood vessels of the sexual organs. Kohn states that he has found it most useful in functional impotence or sexual neurasthenia, when otherwise the desired effect was retarded by antagonistic ideas or by nervous weakness (paralytic impotence). After the injection of aphrodine (Yohimbine Spiegel) into dogs, Müller found that the centre for erection acted better to stimuli; on touching the prepuce, inner part of the thigh, or sole, an erection was more readily produced than under normal circumstances. Other drugs claimed to be aphrodisiacs, such as cantharides, strychnine, and nitroglycerine, had no such effect. Moreover, aphrodine (Yohimbine Spiegel) has the further effect necessary for an aphrodisiac; it causes congestion of the genital organs. This was discovered by Loewy [2], confirmed by Duhot [4], Bartholow [4], Poltawzeff [5]. In rabbits the sexual organs, and especially the testicles, become markedly swollen. These glands normally are of the size of peas or beans, and lie just at the groin without filling the scrotum. After the administration of aphrodine they fill the scrotum completely, and become as large as a Para nut. In dogs, guinea-pigs, mice, cats, besides the swelling of the testicles, repletion, enlargement, and hardening of the penis occur. The organ becomes rigid, and *strong erections* take place, lasting a longer or shorter time. The same phenomena have been observed by Seitz [6], in a healthy man. Combined with the dilatation of the blood-vessels there is an *increase in the rapidity of the circulation*, which Müller [7] was able to render visible in the vena dorsalis penis. Further dilatation of the vessels at other parts of the body was seen. After subcutaneous injection of 0.1 milligramme per 2 lb. weight of the animal, or intravenous injection of 0.005 to 0.01 milligramme, dilatation of the vessels in other parts, conjunctiva, ears, nose, extremities, even the intestines may be observed. *The vessels of the central nervous system dilate.* This has been shown by plethysmographical experiments of Alexander Strübell (*Wien. Klin. Woch.*, 1906, No. 37). The volume of the brain and the pressure in the cranium are increased to such an extent that pulsations of the brain are sometimes suppressed. That these features are due to the dilatations of the vascular system is proved by the fact that at first a *decrease* of blood

pressure is produced, while later the pressure returns to normal. The better circulation of blood of the central nervous system improves the functions of the centres. If large doses are given to animals the specific effects disappear; a general state of excitement, restlessness, irregular breathing, decrease of blood-pressure and increase of pulse rate are observed. In man the following symptoms are produced by too large doses: excitement, fainting, unsteadiness, increase of pulse are found. Only in huge doses is the heart liable to be depressed. In contrast to the effect of older aphrodisiacs, *the kidneys are not affected in any way by aphrodine (Yohimbine Spiegel) Loewy* [2].

It produces erections independent of the nervous condition of the patient. After yohimbine has taken effect once or several times, the centre becomes responsive to the weaker normal stimuli. This effect lasts for some time, or a complete cure may thus result. In organic disease of the spinal cord, such as tabes and myelitis, good results have been obtained, if the centre for erection has not been entirely destroyed. Erections are produced when normal stimuli are ineffectual. Aphrodine has also proved useful in impotence resulting from a number of constitutional diseases, such as diabetes, obesity, and renal disease, and in impotence resulting from the excessive use of morphia, opium, potassium bromide, alcohol, tobacco, tea, and coffee.

Professor E. Mendel, Berlin [8], was the first to systematically use aphrodine (Yohimbine Spiegel). In 1900 he treated forty patients, and cured half of them. In most of the cases there was neurasthenic impotence.

Since the publication of Mendel's article twenty-seven papers have appeared on the use of this preparation, which show that it is attaining an important position in every civilised country. Eulenberg [9] writes that in all persistently treated cases of neurasthenic impotence (twelve in number at the time of publication) he has seen *positive results*, notwithstanding the severe nature of the diseases. Dr. Vincenzo d'Amato [10] states that after three to six weeks' treatment of twenty-four patients suffering from neurasthenic impotence, *all of them were cured*. Similar results were obtained in five patients, whose cure is reported by Maramaldi [11]. Munoz cured five out of six patients, Duhot [12] eight out of ten, &c.

The results, of course, depend on the gravity and duration of the malady. If it is only a matter of too weak erections, or of erections ending too quickly, the prospects of the cure will be far more favourable than in cases in which no erection at all can be produced normally, especially if this condition has existed for some years. But even under these conditions a cure can be obtained. This is proved by Berger's experience, who obtained favourable results in severe cases of paralytical impotence of some years' duration. One medical man successfully used aphrodine in a case of impotence of ten years' duration. Eulenberg *cured a patient who had suffered for twenty years from impotence*.

The following reports have been made by writers who have treated a great number of cases.

Privy Medical Councillor Professor Dr. Eulenburg, Berlin [9], says: "When employing Yohimbine Spiegel in the treatment of neurasthenic forms of impotence, every other form of medicine may be dispensed with. Professor Dr. N. Barucco, Bologna [13], writes: "The remedy

proved efficacious even in very severe cases in which hydrotherapeutics, electrotherapy and the use of strychnine were of no effect." Dr. Duhot, Brussels [3]: "For combatting neurasthenic impotence, Yohimbine Spiegel is a very valuable agent which may be safely employed." Dr. Müller de la Fuente [7] writes that the remedy has not failed him in any case as yet. "Injurious by-effects have never been observed by me, even when giving double the dose as stated (four tablets of 5 milligrammes per day)." Professor Giacomo di Lorenzo, Naples [14], says that formerly he obtained good results by resorting to electricity, hydrotherapy, and the strychnine-iron treatment as introduced by him, but he acknowledges the great superiority of Aphrodine. Dr. E. Kraus, of Vienna [15], states that in view of the innocuousness of the remedy, medical practitioners will be glad to have recourse to it, all the more so as they may be assured of gratifying results.

Impotence in Tabes: Euler-Rolle [16] found in that of Tabes, not only erections, but even normal ejaculations, occurred after the use of Yohimbine Spiegel.

Impotence in Diabetes was successfully treated with Aphrodine (Yohimbine Spiegel) by Hirschfield [17]. Two cases of impotence being due to *chronic intoxication* were successfully treated by Silberstein. The same writer cured one patient suffering as the result of *bromism*. Euler-Rolle [16] obtained good results in two cases of *lead poisoning*.

If Aphrodine does not prove effective in every case, it shares this quality with all other, even the most efficacious, remedies. Failure, however, is not infrequently due to deficient dosage or to interruption of the treatment after a short time. A function which has been absent for a long time naturally cannot be restored within a few days. The excitability of the nerve centres differs in individuals, and this especially holds for the centre of erection. Sensual perceptions and ideas which are highly exciting to one man exert no influence on another. Thus the quantity of Aphrodine required for producing an erection must vary with the individual. In the event of there existing no excitability of the centre at all, even large doses, it is true, cannot produce effects.

ADMINISTRATION OF APHRODINE (YOHIMBINE SPIEGEL) FOR STUD PURPOSES.

The well-known German veterinary surgeon, Heinrich Holterbach, Offenburg, recently published the result of his investigations (*Tier-ärztliche Rundschau*, 1906-7), and recommends the following doses (three to six times a day as sexual tonic, six to ten times a day in cases of paralysis):—

Horses and Cattle	...	...	0'05	gramme.
Pigs	...	...	0'01	"
Sheep and Goats	...	...	0'01	"
Dogs up to 22 lbs.	...	...	0'00025	"
Dogs up to 55 lbs.	...	...	0'001	"
Dogs over 55 lbs.	...	...	0'0025	"

H. Holterbach cites the following interesting case of sterility of a cow in consequence of chronic metritis.

"Hausmann, of Tunsweiler, consulted me about a five-year-old cow which was no longer fruitful.

"Anamnesis showed that one and three-quarter years previously

the cow had had difficult parturition in consequence of an abnormal position of the foetus, which had been remedied without calling in veterinary help. As a sequel, weakness of the hind quarters arose which gradually disappeared; this was followed by a discharge from the vagina, which lasted for about a year with increasing intensity, and then completely disappeared. The cow came plainly in season at the beginning of the year, but towards the end not so markedly.

"In the second year all trace of rutting was lost. The cow was regularly put to the bull in the first and also second year because the owner was anxious to breed from her, as she was a valuable animal. No conception occurred. They had almost resolved to sell her, but did not like to tell the lady owner, and so I was called in. I found on examining the cow in December, 1906, that she was a well made, well nourished cow and completely healthy, barring the sterility, and she represented a considerable sum as slaughter value.

"The widow was mistrustful in consequence of the report of her man, and fancied the cow was a waster and incurable. I persuaded her, however, to let me try some Aphrodine (Yohimbine Spiegel) on her, which drug had stood me well on a former occasion. I gave the cow 2 grammes in tablet form, with instructions to give three daily in bran tea. The son of the house, an intelligent man (who looked on the experiment with some distrust) noticed a few days after giving the last tablet that the cow came strongly in season. She was taken to the bull and stood well, and I am perfectly certain to-day that she is in calf.

"Of the symptoms of the rutting, whether there was swelling or slight hæmorrhage from the vulva, I could gain no information. The result of the remedy in this case is so clear that he who is not convinced can only be prejudiced."

Holterbach also found this drug a specific against obstinate vomition in the dog, also in spinal paralysis, and as an aphrodisiac for stallions.

THE USE OF APHRODINE (YOHIMBINE SPIEGEL) IN FEMALES.

Experiments on female animals show that in them also typical hyperæmia of the abdominal, and particularly of the sexual, organs is produced. Recent reports of veterinary surgeons and stockbreeders show that a most striking effect is produced on rutting and the libido sexualis.

Veterinary Surgeon Simon [22] reports that in three cows which with the greatest difficulty could be covered, the use of Yohimbine increased the sexual instinct and removed the difficulty.

Haas writes that a cow which had failed to come in season was treated with Yohimbine, and on the fifth day the œstrum began. She was put to the bull and conception took place. Similar results are reported by Simon [22] concerning two cows. Haas further reports the case of a cow which for a year did not come in season, while normally cows are in season every three to four or six to eight weeks at longest. After a treatment with Yohimbine for fourteen days the cow began to discharge and was covered. Ficarelli [23] reported the cases of three cows, the first of which had not been in season for over two years, the second six months, and the third five months. After five to six days' treatment with Yohimbine the œstrum began in all three, and they were covered. Holterbach was able to obtain a

similar effect on a bitch by dosing her for five days with Yohimbine, and on a sow. Each animal had 5 milligrammes Yohimbine Spiegel three times per day.

Various studs are reporting that mares which failed to come in season reacted in the same manner to a treatment with Yohimbine.

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FUTURE WORK IN ERADICATING TUBERCULOSIS.*

BY A. D. MELVIN, CHIEF OF THE BUREAU OF ANIMAL INDUSTRY, UNITED STATES DEPARTMENT OF AGRICULTURE.

So much has been written upon the subject of the eradication of tuberculosis for so many years that it may seem superfluous to say anything further before this body; but the fact remains that, although much has been said and much work has been done, this disease is, without doubt, upon the increase.

The great agitation which has been going on for some time regarding meat and milk inspection has brought this question of tuberculosis before the public in a more direct manner than ever before, and it occupies an important position in the minds of all reasoning people. Never, therefore, has the time seemed so favourable for securing the

* Presented at the meeting of the American Veterinary Medical Association at Kansas City, September 13, 1907.

endorsement of the people in carrying on the work of eradication. In an important movement of this sort it is imperative that it be sustained by the endorsement of the public, for without such endorsement those who are selfishly interested generally place so many obstacles in the way as to successfully frustrate any effort in that direction. Without becoming alarmists to an unnecessary degree, it is the duty of the profession to keep this matter before the public in such a way that the public may become familiar with the subject, and understand the importance of eradication from both an economic and health standpoint.

The reports of the Bureau of Animal Industry indicate that this disease is steadily increasing, as shown by the number of animals found affected at the various slaughtering centres. The increase in the number of cases found is due in part to the increased efficiency of the method of inspection, but only in part. For the fiscal year ending June 30, 1903, the percentage of tuberculosis found in cattle at abattoirs was 0.169; in 1904, 0.203; in 1905, 0.226; in 1906, 0.259; and in 1907, 0.363; for the months of January, February and March, 1907, the percentage was 0.434, and for the months of April, May and June 1907, the percentage was 0.539. Thus, during a period of five years the increase in cases found upon *post-mortem* examination has been from 0.169 to 0.539, which surely is an alarming state of affairs. The various recent articles showing the ease with which this disease can apparently be conveyed from cattle to man has awakened the interest of the medical profession, and it is now ready to support any movement looking to the eradication of the disease. The very general impression until recent years that this disease was conveyed principally through the medium of dust and by inhalation, failed to interest that profession in any movement looking toward the eradication of tuberculosis from live stock.

Without considering the matter as a public health question, but looking at it entirely from an economic standpoint, and as a business proposition, live stock raisers cannot afford to have this disease in their herds. As an illustration, Argentina requires that all cattle imported into that country be subjected to the tuberculin test upon arrival, and as a consequence exporters from the United States had the test made of all cattle intended for shipment. The results of these tests show that in some of the full-blooded herds nearly 50 per cent. of the animals reacted, and in consequence that many sales were lost.

When the practice becomes general for all buyers of breeding cattle to have the same tested before placing them in their herds, the breeder of strictly healthy cattle will then be much sought after. Already some breeders of full-blooded cattle have established or are arranging to establish such free herds.

Considerable tuberculin testing of cattle has been done in Washington, D.C., and vicinity, for the purpose of assisting the district authorities in obtaining a pure milk supply, and of obtaining for the Bureau further information regarding the extent of tuberculosis in that locality, and for other purposes. The tests conducted by the Bureau showed over 18 per cent. of the cattle reacting. The percentage of tuberculosis in various States, shown by tests conducted by the officials of those States with Bureau tuberculin, indicate from 2.79 per cent. to 19.69 per cent. of the cows reacting, and slaughtered as being

tuberculous. It should be stated, however, that in all probability the majority of these tests were made in herds where the disease was thought to exist, and that on that account the percentage may be higher than it would be if all the cows of a certain section were tested.

In various sections where an effort has been made to secure a wholesome milk supply, many dairymen have been found ready of their own accord to assist in the work of eradication. Many others would do so, with some small financial assistance, and others would necessarily have to be forced to submit their cattle for examination. As the eradication of the disease in such cases is undertaken as a public health measure, it would seem reasonable that the States should assist in recompensing, at least in part, the dairymen whose cattle are slaughtered. Many of these dairies consist of highly-bred cattle, and it has been and will be necessary to employ the Bang method, in addition to the slaughter of the reacting animals.

The following is a form of agreement prepared by the Bureau, and required as the consideration for testing the herd:—

UNITED STATES DEPARTMENT OF AGRICULTURE, BUREAU OF ANIMAL INDUSTRY.

AGREEMENT.

IN CONSIDERATION of the testing of my herd of dairy cattle by the Bureau of Animal Industry of the United States Department of Agriculture, and the assistance of said Bureau in enabling me to produce milk free from the contamination of disease germs, I.....owner of.....dairy herd, do hereby agree as follows:—

(1) I will cause all animals that react to the tuberculin test, and which also show other symptoms of tuberculosis, to be slaughtered within a reasonable time under United States meat inspection, and I will cause the carcasses of said animals to be disposed of according to the meat inspection regulations of the Bureau of Animal Industry, based upon the lesions found upon inspection.

(2) I will cause all animals that react to the tuberculin test, but which show no other evidence of tuberculosis, either to be slaughtered and disposed of as herein provided for animals which show also other evidence of tuberculosis, or I will cause such animals to be removed from the dairy farm upon which the healthy animals of the herd are maintained, and I will cause the diseased animals to be segregated from the healthy animals, and thereafter they shall remain so segregated.

(3) In all cases where the milk from such segregated reacting animals is to be used for any purpose whatever I will cause the said milk to be sterilised.

(4) I will cause the young from said segregated reacting animals to be removed from their mothers at birth, and will not permit the said young to suckle their mothers.

(5) Any part of my premises contaminated by reacting animals will be submitted by me to a thorough disinfection under the direction or supervision of the Bureau of Animal Industry.

(6) All cows owned by me—both healthy and tuberculous—I will mark in such manner as to enable their identity to be retained, and I will change the location of no cows except after due and timely notification to the Bureau of Animal Industry.

(7) I will add no cattle to the said herd which have not passed a tuberculin test administered by an authorised agent of the Department of Health of the District of Columbia or by an agent of the Bureau of Animal Industry.

(8) I will comply with all reasonable sanitary measures which are indicated by the Department of Health of the District of Columbia or by the Bureau of Animal Industry.

IN WITNESS WHEREOF I have signed this agreement this.....day of....., one thousand nine hundred and seven.

Owner of the.....Dairy Herd.

(Address).....

Witness:

The recent effort of the large packing interests to buy all dairy cows subject to *post-mortem* inspection shows how serious the plague is becoming. Sooner or later the one who raises those diseased animals must suffer the loss, unless the loss is paid for out of public funds, and when he does you may then know that the end of the disease is in sight.

As before stated, no progressive stock raiser, and in fact no stock raiser, whether progressive or not, can afford to go on breeding cattle while this disease exists in his herd. As soon as this fact is fully understood, much of the objection raised against the sale of live stock subject to inspection will disappear, for it would be worth the price of several condemned animals for the owner of a valuable herd to know as early as possible when the disease exists in his herd, as the longer he delays in taking steps to prevent its spread, the greater will be his loss eventually.

Some years ago the Bureau of Animal Industry, in order to protect as far as possible the breeders of cattle from the danger of this disease, issued an order requiring all cattle imported for breeding purposes to be subjected to the tuberculin test. The wisdom of this step can be shown by merely stating that 19.7 per cent. of the cattle tested since that time have reacted, and that from several foreign herds no cattle are even considered for testing on account of the general infection existing in those herds. Unless some steps are taken soon to eradicate the disease, will not the same conditions exist in this country within a few years, if they do not already obtain in some instances?

The Bureau has recently undertaken to ascertain the origin of all tuberculous cattle slaughtered at establishments where inspection is maintained, and in such instances to inform the State authorities of the facts. The information thus obtained is transmitted to the authorities of the various States, and it is hoped that it will be used in endeavouring to locate the centres where infection exists, and to eradicate the disease. When a system of co-operation can be effected between the State and Federal Governments providing for a general plan of tagging all dairy cows shipped to market centres for slaughter, then the work of locating these disease centres will be greatly simplified. Had the packers been successful in their recent efforts to buy all such cattle subject to inspection, such a system of tagging would have been necessary in order that the identity of the animal could have been retained.

It may at some time be necessary for the Federal Government to quarantine against the interstate shipment of cows from certain states where the disease prevails to a considerable extent, and require a strict supervision over all animals removed from such states for interstate shipment, and only remove the quarantine from sections of a state when it has been demonstrated that the disease has been either eradicated, or is under strict local quarantine.

The recent agitation against the milk of tuberculous cows as human food has had the effect of causing many herds to be examined, with astonishing results to not only the owners, but to the officials themselves. Can it be wondered at that so many infants and children die of intestinal tuberculosis when so many of the cows from which the milk is obtained are tuberculous?

Recent feeding experiments conducted by the Bureau have proved

conclusively that hogs are readily infected through the ingestion of faeces and of milk from tuberculous cows. The percentage of all cases of tuberculosis of all the hogs slaughtered under inspection for the fiscal year ending June 30, 1907, amounts to 1.43. There is no doubt in my mind that this percentage will be reduced to a negligible quantity as soon as the disease is eradicated from cattle. There has been considerable incredulity with reference to the tuberculin test, particularly among those opposed to the movement to stamp out the disease; but the statements of such persons should not be given very serious consideration, except as they may be the means of prejudicing the uninformed against the tests. There is no more reliable diagnostic agent than properly prepared tuberculin in the hands of the careful observer. The reports received by the Bureau from State officials from all parts of the United States of tests made by competent veterinarians absolutely confirm this statement. Frequently affected animals give little or no reaction, or a subnormal temperature; but in these latter cases any veterinarian of average ability should be able to diagnose the disease by physical examination alone, as in nearly all such cases the disease has become so generalised that a mistake should not be possible. It is understood, of course, that tuberculin should be administered by a reliable veterinarian, and that in addition to the test a physical examination should be made of the cattle. A compilation of these many tests is now being made with a view to publishing the report.

That impotent commercial tuberculin has been on the market is a fact which was demonstrated by the Bureau, and at its request Congress gave it authority to make tests of tuberculin, vaccines, and similar products, and to publish results. Such tests are now being made, and if any inferior agents are found, public notice of that fact will be given. The use of this worthless tuberculin may to some degree have been the means of prejudicing some practitioners and others against the use of any tuberculin.

In my opinion the time is very near at hand when our profession will be face to face with the problem of eradicating this plague from the herds of the country. It therefore behoves us to give the subject our most careful thought and consideration. It means the expenditure of millions of dollars of public money, and a great financial loss to individuals. I again repeat that in a movement of this magnitude it is necessary to have the support of the public and of the live stock owners in general in order to meet with success; and the principal object of this paper is to place before you the importance of informing stock owners and others of the great dangers from tuberculosis, both from an economic and health point of view.

Clinical Articles.

A CASE OF DOUBLE "GONITIS" IN A HORSE.

BY GEO. H. WOOLDRIDGE, F.R.C.V.S., PROFESSOR IN THE ROYAL VETERINARY COLLEGE OF IRELAND.

THE subject was an 8 or 9 years old black light vanner, 17.2 hands high at the withers. The only available history was that the horse had been lame for some months and was getting worse. The horse was sent into the college, and was kept under observation for a few days. He was lame on both hind legs, but was much worse on the near when standing; the near limb was advanced and frequently held off the ground. The stifles were both abducted, and the crural muscles were considerably atrophied. The "tensor fasciæ femoris" was intensely rigid, and felt almost as though it were cartilaginous on



Left. Right.
FIG. 1.—Lower extremities of the two femurs.

the near side. A swelling of a gelatinous consistency could be felt between the straight ligaments of the patella on the near side, but there was no swelling or distention appreciable affecting the off stifle. On walking, the movements of the stifles were both obviously limited, and the toes were dragged. The horse was made to trot, and the dragging of the toes was then more marked. Arthritis of the stifle joint was diagnosed and slaughter recommended. The day before slaughter, however, a change occurred in the lameness. Instead of being worse on the near hind the horse stood well on it, and slung the off hind, and on being walked he was much more lame on the off than on the near. These sudden changes in the degree of lameness in this affection are responsible for the name "Rheumatoid arthritis of the stifle," which is sometimes applied.

On examining the joints *post-mortem* marked lesions were found affecting both stifles, and they appeared to be more recent and acute in the near stifle.

Lesions of the Left Stifle Joint.—This joint contained a quantity of blood-stained coagulated synovia. The left tibia showed no lesions. The articular cartilage of the left patella was somewhat reddened, but the surface was smooth. The lower extremity of the left femur showed lesions affecting both the trochlea and condyles. The cartilage of the former was very red, particularly that of the inner lip, which also carried a few fringes. The cartilage of the anterior portion of both condyles were swollen and soft, with a consistence almost spongy. The inner condyle also showed erosions which can be seen in the photograph (No. 1). All round the inner margin of the articular carti-



Fig. 2.—Upper extremity of the right tibia.

lage of this condyle there was an eroding osteitis (caries), and at the postero-internal border there were two exostoses, each about the size of a horse-bean. The outer condyle appeared to have slightly larger transverse diameter than the corresponding condyle of the other femur, and this was accounted for by a deposition of bone at the outer margin of the articular cartilage. No lesions were found on the semilunar cartilages of this joint, beyond a slight redness on the femoral surface.

Lesions of the Right Stifle Joint.—There was no effusion in this joint, and, as before stated, the lesions were older and less acute than those of the left stifle, and in this instance the tibia was involved to an extent fairly well shown in photograph No. 2. The articular cartilage of both tuberosities of the tibia were eroded, and in the case of the inner tuberosity the erosions extended into the bone. The tibial surfaces of

the semilunar cartilages showed erosions of the corresponding areas. The articular cartilage of the trochlea was reddened, particularly the inner lip. The posterior portion of the cartilage of the condyles was soft, as in the other femur. The inner condyle showed no erosions, but there were some markings which looked like cicatrices. The outer condyle had a slight bony deposit at the outer side corresponding with that on the outer condyle of the other femur, but smaller.

Prof. Mettam kindly took the photos for me.

AN INTERESTING DISLOCATION OF THE WRIST.

BY T. F. PRIME, M.R.C.V.S., NORWOOD.

A SMALL three-year-old Yorkshire terrier was brought to our infirmary by the owner, who had previously taken the dog to a chemist, the latter gentleman being unable to relieve the animal. The dog, when jumping off a low wall, had overbalanced and fallen 16 feet on to the hard road.



Photograph of the Dislocation.

On examination, we found that it had dislocated the wrist joint, forcing the foot and leg forward, so as the part stuck out at right angles, with the pad of the foot facing upwards. Under chloroform anæsthesia the dislocation was reduced, and the parts were afterwards put in a tight splint and bandaged. So far as I could feel, and from the extreme rigidity of the part before giving chloroform, no ligaments or tendons were ruptured, and there was no fracture. The dog returned home to his owner next day, and has made an excellent recovery.

RUPTURE OF THE RIGHT CARDIAC AURICLE IN
A HORSE.

BY J. J. O'CONNOR, M.R.C.V.S., PROFESSOR OF SURGERY AT THE ROYAL VETERINARY
COLLEGE OF IRELAND, DUBLIN.

AN underbred gelding, aged 4, was sent in from the country for the purpose of having a fairly large botriomycotic tumour removed from the lower part of the left jugular furrow. The horse was cast with hobbles. He went down easily and with no particular shock. Cocaine (5 grs.) was used as a local anæsthetic, and the animal struggled very little.

When the tumour was excised to about half its extent the horse made a sudden convulsive movement with all his limbs and expired. Artificial respiration was performed and stimulants administered, but with no avail. The visible mucous membranes became pale, and as not more than one quart of blood was lost during the operation, we concluded that the pallor was due to internal hæmorrhage.

Post-mortem examination revealed a normal condition of the abdominal organs, hæmopericardium, a very flabby and fatty heart, and a rupture about 3 inches long in the right auricle, the posterior vena cava being torn away from its connection with the heart. The advanced state of fatty degeneration of the organ was evidently the cause of its rupturing on such slight provocation.

SUPPLEMENTAL NOTES ON INTERDIGITAL CYSTS
CAUSED BY BARLEY AWNS.

BY W. F. GARSIDE, F.R.C.V.S., REIGATE.

THE cases I published in the *VETERINARY JOURNAL* of October, 1906, supplemented as they were by those recorded by Mr. Livesay, of Brighton, in June, 1907, have convinced me that the foreign body which is the cause of these fistulous wounds is in nearly every case of vegetable origin. The following examples which recently came under my notice not only emphasise this conviction, but show the necessity for a very careful and thorough search, as on two occasions I was unable, on my first examination, to discover the offending agent. This difficulty arises, I think, in part from the smallness of the awn and in part from the facility with which it is stained by the blood and fluids by which it is surrounded, especially by the blood which necessarily follows when the incision of the sinus is made. Possibly this might be modified by using a tourniquet prior to operating or injecting a solution of adrenalin. At any rate, in future cases I shall employ some such means to control the hæmorrhage, and so limit the amount of discolouration of the awn, which renders its discovery more difficult. Another point of interest lies in the fact that in Case 2 a *second* awn was present, though there was nothing to indicate its presence when I first operated on the foot.

CASE 1.—An Aberdeen terrier, lame of the left leg. Examination of the foot showed a cyst-like swelling between the digits, a minute

opening at its most prominent point, through which, on pressure being applied, a small quantity of a sanious discharge escaped. A blunt-pointed director was inserted, the sinus laid open, and at its extremity the expected awn was found. The next day I received word that a similar swelling had appeared on the *other* foot. The same process was carried out, but, to my surprise and disappointment, no awn was found. When I saw the foot three days afterwards there was still an unhealthy discharge, and, feeling convinced a foreign body was present, although my first search had been ineffectual in discovering it, I again probed and opened up the sinus. This time with success—the awn was there, though much farther up the leg.

CASE 2.—An Irish terrier, showing the usual symptoms, except that the cyst was above the interdigital space. Examination and operation took place at night in an imperfect light. Failed to discover the offending body. Two days later, as healing had not taken place, the sinus was again opened, and the awn, which had penetrated to the region of the carpal joint, removed. A few days later the owner telephoned that the dog was still very lame. On examining the foot, I noticed a swelling between the digits, but lower down than the original one. On probing the sinus, I found that it was distinct from the latter. It was opened, and once more the ubiquitous awn discovered and removed. It is hardly necessary to add that removal of the foreign body was in each case followed by complete and uneventful recovery.

Whilst on the subject of sinuses and their causes, I take the opportunity of recording a singular or, at any rate to me, a very unusual causative agent. The patient was an Irish terrier. On the inside of the forearm was a small wound, which showed no inclination to heal under ordinary treatment. Recourse was, therefore, had to the knife, and an incision 4 inches long made parallel with the long axis of the leg. On completing the incision, a foreign body sprang out from the wound, which on examination proved to be the major portion of the eye tooth of a dog, the assailant no doubt during a fight, and left as a legacy embedded in the tissues of its victim.

Reports.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

THE American Veterinary Medical Association held its Forty-fourth Annual Meeting at Kansas City, Missouri, September 10 to 13, 1907. The meeting was presided over by the President, James Law, F.R.C.V.S., Director of the New York State Veterinary College, Cornell University.

After a hearty welcome to Kansas City by the Mayor, Hon. Henry M. Beardsley, and a reply thereto by W. H. Dalrymple, M.R.C.V.S., of Louisiana, the President, Professor Law, delivered his annual address, in which he ably discussed the advancements made in America and the world at large in veterinary science and practice; the present state of veterinary education, pointing with special pride and emphasis to the strong tendency expressed during recent years in behalf of the

education of the veterinarian by the State, as well as the heretofore unknown liberality of private benefactors, and drew attention to the need for higher efficiency of the schools and practitioners.

The meeting was the largest in the history of the Association, there being registered 634 members and visitors present, representing thirty-three States, the District of Columbia, Canada, and Cuba. One hundred and thirty-five new members were admitted.

Dr. Leonard Pearson, Dean of the Veterinary Department of the University of Pennsylvania, as Chairman of the Committee of Intelligence and Education, presented a report of exceptional merit and interest, in which he dealt with what our veterinary colleges should be, rather than what they are.*

The Committee on Diseases presented its report in sections. The Chairman, V. A. Moore, M.D., Professor of Pathology and Bacteriology in the New York State Veterinary College, presented "Some Principles of the Newer Pathology in their Application to the Control of Disease."† Drs. A. D. Melvin, Chief of the United States Bureau of Animal Industry, and John R. Mohler, Chief Pathologist to the Bureau, both of Washington, D.C., presented by title a technical paper on "Dermal Mycosis in Horses"; and Professor L. A. Merillat, of the Chicago Veterinary College, a paper on "The Disposition of Horses affected with occult Glanders."

Among the papers presented was one by Dr. A. Liautard, Dean of the American Veterinary College and Editor of the *American Veterinary Review*, entitled "John Smith and his Misfortunes," in which he graphically described the trials and tribulations of the recent graduate of an American veterinary college and his efforts to establish himself in veterinary practice. His diploma is unrecognised by many of the States, he must go before a State Examining Board for licence to practise in one State; he must take a similar examination if he later wishes to remove to another State; the State Board of veterinary examiners may be less competent to examine than the teachers who granted the diploma; he is not only required to pass examinations in professional subjects, but in examinations for admission to the army service and that of the Bureau of Animal Industry, and in some State examinations the applicant must directly or indirectly pass in reading and writing. Some State Boards will not, and can not, examine the applicant because the laws bar him from practice for one or another reason. The chaotic condition of veterinary education and license is well portrayed, and suggestions urged for correcting the evils.

Dr. D. Arthur Hughes, of the Army Veterinary Service, presented a paper upon "The Place of Veterinary Medicine in State Education," wherein he pleaded for advances in veterinary education in America, which, he held, could be best attained through the aid of the State.

Professor P. A. Fish, of the New York State Veterinary College, who recently returned from visiting the leading veterinary schools of Europe, presented an interesting and instructive summary of his studies, under the title of "Observations on the Veterinary Education and Practice of Europe."

Dr. A. T. Kinsley, Professor of Pathology in the Kansas City

* The report of Dr. Pearson will be found in the November issue of this Journal.

† Dr. Moore's paper will appear in the January number of the Journal.

Veterinary College, presented an extensively illustrated address upon "Tumours."

Drs. C. A. Cary and Ward Giltner, of the Alabama Agricultural College, presented a paper on "Municipal Milk Inspection in the South," which was followed by the closely related communication of Professor M. H. Reynolds, of the University of Minnesota, upon "Milk as Affected by Stable Practises and Subsequent Exposures."

"Stable Ventilation from a Clinical Standpoint" was presented by Dr. G. A. Johnson, of Sioux City, Iowa.

"Future Work in the Eradication of Tuberculosis" was the title of an excellent communication presented by Dr. A. D. Melvin, Chief of the Bureau of Animal Industry (see p. 735).

Dr. John R. Mohler, Chief of the Pathological Division of the Bureau of Animal Industry, presented a report upon "Tuberculosis in Swine," discussing its causes, extent of dissemination, economic importance, and means for control and eradication. (The paper by Dr. Mohler will appear in the next number of the Journal.)

"Notes on the Surgical Relief of Roaring"* was the title of a communication by Professor W. L. Williams, in which he continued the topic as presented at the previous annual meeting, following the cases then reported upon, and reporting later operations, with modifications, intended to overcome defects in technic which had become apparent.

ANNUAL MEETING OF THE ASSOCIATION OF VETERINARY FACULTIES AND EXAMINING BOARDS OF NORTH AMERICA.

THE above affiliated body of the American Veterinary Medical Association held its annual meeting during the session of the parent organisation, and was well attended, there being more than fifty members present, with representatives from most of the veterinary colleges of North America and of many of the State or Provincial Examining Boards.

Papers were presented by Dr. George H. Roberts, of the Indiana Veterinary College, on "The Ethical Relation of Colleges"; by Professor W. L. Williams, on "The Preparatory Education of the Veterinary Student," and by Dr. Wm. Herbert Lowe, of the State Examining Board of New Jersey, on "The Necessity of a Broader Scope in Veterinary Education," all of which were earnestly discussed, along with other topics which were informally introduced by the various members present.

* The paper by Dr. Williams appeared in the November number of the Journal.

Personal.

WE were glad to see on the "Birthday Honours" list the name of Dr. A. Theiler, Government Veterinary Bacteriologist of the Transvaal. His Majesty has been pleased to invest Dr. Theiler with the Order of C.M.G., a distinction highly deserved on account of his invaluable services to the agricultural community of South Africa, and to the cause of bacteriological science in general.

PROFESSOR KOCH has been honoured, by His Majesty the Emperor of Germany, with the rank of Privy Councillor, to carry with it the title of "Excellency."

PROFESSOR H. A. WOODRUFF has been appointed to the Chair of Veterinary Medicine at the Royal Veterinary College, London, about to become vacant through the resignation of Professor Penberthy.

PROFESSOR G. H. WOOLDRIDGE, of the Royal Veterinary College of Ireland, has been appointed to the Chair of Veterinary Hygiene, Materia Medica, and Therapeutics at the Royal Veterinary College, London.

THE HUNTING TESTIMONIAL.

WE are pleased to note that, up to the present, the sum of £225 10s. 6d. has already been subscribed to the above fund. The names of the subscribers have already been acknowledged, with full details of the subscriptions, &c., in the *Veterinary News* and *Veterinary Record*. Mr. Malcolm, F.R.C.V.S., of Birmingham, is the Treasurer.

ROYAL COLLEGE OF VETERINARY SURGEONS.

THE WALLEY MEMORIAL PRIZE COMPETITION.

EXAMINATIONS were held simultaneously in London, Dublin, and Edinburgh, on Saturday, October 5.

The prize has been awarded to Mr. A. W. Shilston, a student of the Royal Veterinary College, Camden Town, N.W.

10, Red Lion Square, W.C.

FRED BULLOCK, *Secretary*.

Reviews.

VETERINARY MATERIA MEDICA AND THERAPEUTICS. By KENELM WINSLOW, B.A., M.D., M.D.V. (Harv.). Fifth edition, revised and enlarged. Pp. viii. + 857. Medium 8vo. Published by Messrs. Baillière, Tindall and Cox, London. Price, 25s. net.

The fact that the fourth edition of this work, published only last year, has already been exhausted, necessitating the issue of a fifth edition so soon, speaks very highly for the reception it has met with in America. A few alterations and additions have been made in order to bring it well up to date, with the result that it is probably the best existing work on the subject. Much of the matter on properties, derivation, &c., is according to the U.S.P., while the important preparations of both it and the B.P. are included. In addition to the general considerations of the medicinal agents, special attention is paid as occasion warrants to the application of remedies in special cases, making the book much more interesting to the student of materia medica, and of great service to the busy practitioner. We will quote an example of what we mean. On page 330, when dealing with the uses of carbolic acid, the author says: "Bacelli's treatment of tetanus with carbolic acid has met with remarkable success of late. One drachm of the pure acid in solution (5 to 10 per cent.) should be injected in the region of the neck and shoulders of the horse every two hours during the first thirty-two hours, and less frequently afterward. As much as 36 drachms may be given to the horse in twenty-four hours, for there appears to be a special tolerance for carbolic acid acquired in tetanus." Of course it must be understood that we have not tested this line of treatment, and just quote it to illustrate our point. Although it is not recommended to give such extreme doses as 36 drachms in twenty-four hours, we should scarcely like to risk it, but in Bacelli's treatment only one-third of that amount is advised, and in the present unsatisfactory results of treatment of tetanus we think it well worth a trial.

There is a good chapter on prescription writing, including a table of Latin terms used, together with their common abbreviations and translations. This chapter is an excellent one for students. The food and feeding of sick animals have a good share of attention, and considering the enormous bearing food has upon the course and termination of cases, it is remarkable that the subject has hitherto received so little attention in text-books.

Of course, however good works of this kind may be, there are always points more or less numerous to which exception may be taken, and we may say at once that this book follows the general rule. One rather serious matter occurs in reference to tincture of nux vomica, which is marked (U.S. and B.P.). It is said to contain 0.1 per cent. of strychnine. That may be the strength of the U.S.P. tincture, but the B.P. tincture contains two and a-half times that amount, viz., 0.25 per cent. of strychnine. That is a matter of great importance in dealing with a drug of so great toxicity. Again, the B.P. fluid extract of nux vomica contains 1.5 per cent. of strychnine, while the U.S.P. fluid extract contains only 1 per cent. Inj. morphinæ hypoderm. B.P. is said by the author to contain 1 per cent. of

morphia, whereas it contains 5 per cent. These differences, and other similar ones, should certainly be noted in future editions if the author desires a ready sale in the British market.

Ambiguity makes its appearance, too, for on page 31 the author tells us to add *a cup each* of soft soap, salt, and molasses to increase the purgative effect of enemata. Cups vary so considerably in size that one is left in entire ignorance as to the actual amount recommended. We also notice that the author falls into the same error that we are more or less familiar with in some British text-books, viz., a misuse of the word *orem* for the accusative case of *os*. The Latin for "by the mouth" should be *per os*, and not *per orem*.

We have several points to refer to in connection with prussic acid. On page 23 we are told that it acts centrally as a gastric sedative. We believe that its antemetic properties are due to its paralysing effects on nerve terminals. HCN is also omitted from the list of drugs on page 50, which stimulate the respiratory centres, and in this connection we refer especially to its use when respiration suddenly ceases in cases of chloroform anæsthesia. In our hands it has proved itself to be by far the best antidote to chloroform when immediately administered in the full medicinal dose on the back of the tongue from a drop bottle. In connection with the administration of general anæsthetics by respiration, no mention is made of the inhalers which have proved themselves to be almost indispensable for safety in the smaller animals. The author also tells us that a dog should be muzzled by a tape when being chloroformed. Our experience is that such procedure is most inimical to safety, and we strongly recommend the omission of the tape muzzle. On page 618 barium chloride is referred to as though recommended for hypodermic injection, although on page 161 we are rightly told that such procedure would occasion abscess.

At the bottom of page 824 the author says, "Cow-pox and horse-pox appear to arise from contact of healthy animals with variolous or vaccinated persons." We should like to know on what data such statement is based. The general index, which is also a pronouncing index, is good, although occasional numbers are one out, e.g., Barium chloride 159 should be 160, Calomel 210 should read 209, &c.

Taken throughout, the book is an excellent one, and we have no hesitation in recommending its use for both students and practitioners.

The work of the publishers is up to their usual high standard.

THE SURGICAL ANATOMY OF THE HORSE. Part II. By J. T. SHARE-JONES, F.R.C.V.S., Lecturer in charge of the Department of Veterinary Anatomy in the University of Liverpool. Demy 4to., pp. 185, with 8 coloured illustrations, and 26 half-tone plates. Subscription for four parts, cloth, £3; sewed, £2 14s. Published by Messrs. Williams and Norgate, London.

This is the second of four volumes which the author proposes to produce on surgical anatomy of the horse, with a view to filling up a gap in English veterinary literature. The present volume deals with the fore-limb, exclusive of the foot. Owing to the greater surgical importance of the limbs, however, surgery is more fully dealt with than in the first volume, which was on the head and neck. Otherwise the general plan of the work is precisely the same. We are glad to say that it is a great improvement on the preceding volume, and will

be found of great service to students and practitioners alike. The anatomy of the various surgical areas is, generally speaking, well described in the text and well depicted in the plates.

We are of opinion, however, that the surface markings and guide-lines are too quickly passed over. The points at which bones are superficial and can be felt under the skin are imperfectly indicated, both in the descriptions and in the plates, *e.g.*, no mention is made of any superficial parts of the humerus, and consequently from a study of this work one would be unable to locate exactly either the shoulder-joint or the elbow-joint. The coracoid process of the scapula is put down as forming the point of the shoulder, whereas if the "point of the shoulder" means the most anterior osseous point in front of the shoulder-joint, we know that it is formed by the prominences on either side of the bicipital groove of the humerus.

We note that in certain plates the joints of the limb are flexed, and no mention is made of any changes that occur in the relations of the soft structures during flexion; but in the descriptions of the operations it is recommended, and wisely, too, that all the joints should be extended, and certainly any dissection or sketch should be made with the limb in that position.

Coloured Plate XXI. contains a series of errors, or at least it depicts abnormal positions of various structures; but surely in a work of this nature it is the normal that is wanted. The structure marked No. 7 (metacarpal vein) should be *internal* metacarpal vein. The external plantar nerve is shown to be more internal than the internal plantar nerve. Its normal position is to the inner side of the posterior margin of the pisiform bone. The vein marked No. 12, *Internal metacarpal vein*, and corrected in "Errata" to *Metacarpal vein*, if it exists at all, is supernumerary. There is also an unnamed artery lying alongside the misplaced external plantar nerve.

Taken altogether, however, the book will be found very useful, owing to the anatomical and surgical facts being so well interwoven.

The publishers' part of the work is excellent. The paper and binding are good, the letterpress is very clear and easily read, and the illustrations are beautifully reproduced.

OPHTHALMOLOGIE VÉTÉRINAIRE ET COMPARÉE Par le Dr. E. Nicolas, Vétérinaire en 1^{er} de l'Armée. Cr. 8vo., pp. ix. + 468, with nine chromo-lithographic plates and 165 figures. Published by Messrs. Asselin et Houzeau, Paris, 1908. (Price not stated.)

We may at once state that this is the best work on the subject of comparative ophthalmology which it has been our good fortune to see. In his preface the author states that he has endeavoured to present the sum of our knowledge of the subject in as clear and concise a manner as possible, and we must admit that he has succeeded admirably.

In the first place, the plan of the work is excellent. The first chapter is devoted to the general anatomy of the eye and its development, and this is immediately followed by a chapter on refraction and optics. Then follows a description of the ophthalmoscope and its uses, and the appearances of the normal eyes of the horse, ox, sheep and goat, dog and cat, when examined by the ophthalmoscope. The katoptric test is well illustrated by a diagram on page 46; the surfaces of reflection of the Purkinje's images and their relative sizes and brilliancy are very clearly shown.

The author next goes on to deal with the various structures of the eyeball, commencing with the conjunctiva, and proceeding in order with the sclerotic and cornea, iris, ciliary body and choroid, retina and optic nerve, and the crystalline lens. In each case the normal structure is first given, and then their abnormal conditions, with diagnosis and treatment, both medical and surgical.

The accessory organs of the eyeball are next dealt with in just the same clear manner, including the eyelids, lachrymal apparatus, and muscles. We were glad to see that the author did not fall into the error, so common in English textbooks, with reference to the tarsus of the eyelids, which, as he indicates, is composed of dense fibrous tissue, and not cartilage. When we come to the oculo-motor apparatus, however, we are not in agreement with the author in reference to the nerve supply of the retractor oculi muscle (*choanoide ou droit postérieur*) on page 433. He states that it is supplied by the sixth cranial nerve or abducens (*le nerf oculo-moteur externe*). We are under the impression the external fasciculus only is supplied by that nerve, and that the larger portion of the muscle is supplied by the third cranial nerve (*le nerf oculo-moteur commun*).

The nine coloured plates, which include eighteen illustrations, and are from a previous work by the same author in collaboration Dr. C. Fromaget, are excellent, and should be of great assistance. The figures in black and white are also very clear and useful.

We recommend this little work to all our colleagues who read French, and hope the author will make arrangements for its translation into English, so that others may make use of it.

The publishers deserve considerable credit also for their share of the production.

Translations and Extracts.

DOURINE.

BY PROFESSOR F. KERN,

THE author's notes were made during an outbreak that took place in Croatia in 1901. After rapidly reviewing its history, he gives the observations he made, and the various questions that are involved.

Infection and Susceptibility.—In every case infection took place during coitus; inoculation into the eye of a rabbit was negative. An infected stallion covered 105 mares before he was discovered to be diseased. Out of these 24 became infected, or 22·85 per cent. From the statistics of this particular case it was proved that as time goes on the danger of infection diminishes.

February,	3	mares covered,	2	infected,	66	per cent.
March,	22	"	8	"	36	"
April,	26	"	7	"	27	"
May,	33	"	5	"	15	"
June,	21	"	2	"	10	"

The susceptibility of stallions is also very variable. One stallion, Herculeir, covered a contaminated mare, and became at once infected; another covered several in the same condition without any ill result.

Different authors fix the period of incubation at various periods: Maresch gives it from eight days to two months, and more; Prince and Lapour, from seven to sixteen days; Herturg, two to eight days; and Rodloff, eight to fourteen days. The period of incubation was much longer in mares that were covered by the stallion Herculeir: the first symptoms in two months in one mare, three in six, four in two, five in two, six in six, seven in one, eight in one, and nine months in one. The stallion which became infected at the end of the covering season of 1901 did not show the primary symptoms of swelling on the prepuce till the end of 1902, one year afterwards.

Symptoms.—The earliest were swelling of the vulva, the lips of which were infiltrated, but not painful. The mucous membrane was covered with small hæmorrhagic patches, but was itself pale in colour. In certain cases there were vesicles and erosions, leaving behind them cicatrices which were stellate in shape, with small folds of the membrane radiating from the centre. The vaginal discharge consisted of mucus, in some cases yellow, in others of a yellowish colour, that dried in scabs round the lips of the vulva. In some cases there is a uni- or bi-lateral nasal discharge, that may be accompanied with facial paralysis and conjunctivitis.

The cutaneous patches are by no means invariably present. Marek reports that out of seventy mares that he saw in Hungary, in 1898, only three had them. On the contrary, in most cases there were sub-cutaneous œdema, also paralysis, especially facial, and in the hind limbs. There was also in the majority of cases tenderness when the loins were pressed.

Lesions.—These were of the usual character. There were frequently small false membranes on the surface of the parietal peritoneum and liver, such as have already been noticed by Rütke.

Treatment.—Arsenic has been tried; it was given to both a stallion and a mare that were affected; both increased in weight, but were not cured.

Etiology.—The organisms were looked for without any result in the blood, brain, spinal marrow, serous infiltrations, lymphatics, and other organs. There are three explanations to this. The organisms may not always be present in the system; they may escape observation; or the disease may differ from the usual European type. This last appears to be the most probable, as when rabbits were inoculated the symptoms differed from those described by most authors, there being no loss of hair, œdema of the ears, and ophthalmia, then only seen when the virus was old and altered. When blood from diseased horses was injected into the peritoneum of white mice there were no results.

In rabbits the disease developed in two characteristic types. In one there was progressive emaciation; in the other paralysis, that usually commenced in the hind quarters, and extended forwards. Out of twenty-four rabbits that were infected fifteen died from paralysis, and nine from emaciation, and it seemed to be immaterial whether they were inoculated with blood from diseased horses or rabbits. The period of evolution was on an average eighty-two days.

(*Zeitschrift für Tiermedizin.*)

THE SUSCEPTIBILITY OF RUMINANTS AND
MONKEYS TO DOURINE.

BY MESNIL AND ROUGET.

IN 1901 Nocard expressed an opinion that all ruminants and monkeys were refractory to dourine, but the virus he used was not virulent, and rats and mice were seldom infected. That used by Mesnil and Rouget was much more active, and always infected rats and mice. Observations, however, that have been made lately show that even with the same organism the degree of virulency varies. With a strong virus it is possible to infect the *Macacus cynomolgus*, giving rise to fluctuations in the temperature with parasites in the blood.

Rouget reproduced the disease in a goat, that ended fatally in nineteen months, and although slight it was more intense than surra or nagana. A young goat that had been inoculated remained in good condition, and in a Breton cow there was a rise and fall in the temperature, parasites being found in the blood. Re-inoculated six months afterwards, the cow appeared to have acquired immunity.

The authors appear to have established the fact that both ruminants and monkeys are susceptible.

(*Annales de l'Institut Pasteur*).

THE VITALITY OF THE TRYPANOSOMA OF DOURINE
UNDER ARTIFICIAL CONDITIONS.

BY YAKIMOFF.

IN some previous experiments Yakimoff and Kohl have shown that the trypanosoma of dourine will remain alive for thirty hours in the bodies of mice when they are kept at a temperature of from 2° to 5° below zero, and that they will disappear altogether in about eighteen hours at a temperature of from 19° to 20°. In some fresh experiments they have shown that the trypanosoma will live for three days in a solution of citric acid, two days in defibrinated blood, and one day in the serum of horse blood. A low temperature is most favourable for their preservation, at a moderately high one they only live for twenty-four hours. In a solution of citric acid and ice they will live for three days, in the same solution at 21° C. for two days, in defibrinated blood at 21° C. one day.

The trypanosoma of nagana and mal de caderas are more resistant than those of dourine. They live best on defibrinated blood and horse blood serum, and the ordinary temperature of the room suits them best.

The period of incubation in white mice with trypanosoma that have been kept any time is from eight to thirteen days, with fresh blood from three to four days.

(*Comptes rendus de la Société de Biologie*.)

THE ETIOLOGY OF SOUMA (TRYPANOSOMIASIS) IN THE FRENCH SOUDAN.

BY J. BOUFFARD.

SOUMA, which attacks both bovines and equines in the Soudan, has been studied by Cazalbou (Cazalbou, "La Souma." *Revue Generale de Médecine Vétérinaire*, vol. viii., September 1 and 15, 1906, p. 240). The active agent (*Trypanosoma Cazalbou*) is exceedingly virulent with ruminants, but is innocuous to monkeys, dogs and rodents.

The method of propagation has not yet been studied, but Cazalbou thinks it is by stomoxys and not by the tsetse fly. At the laboratory at Bamako Bouffard has proved that it is reproduced from diseased cattle bitten by ticks or stomoxys. On the other hand, on the Niger where the disease is very prevalent both in horses and cattle, neither stomoxys, gad flies or tsetse flies are to be found.

A calf was inoculated from a Maccua sheep, which is a most susceptible breed, and placed in close contact with another healthy one. The animals were left in a closed place, and forty stomoxys introduced for forty-eight hours. On the twelfth day the trypanosomes were found in the blood of the healthy calf.

As the author remarks, it is possible that the flies were infected before they were caught, but this is not probable.

(Comptes rendus de la Société de Biologie.)

NAGANA IN FOWLS.

BY OSWALD GOEBEL.

BIRDS are usually considered refractory to nagana, but according to some recent experiments of Schelling, which are confirmed by Mesnil and Martin, the goose is to a certain extent susceptible. According to Laveran and Mesnil the goose is to a certain extent susceptible.

The author agrees with Laveran and Mesnil that the immunity of birds is on account of their high temperature, and he has successfully produced the disease by inoculation in countries where it is cold.

Blood containing the parasite was used to inoculate fowls in 2 cc. doses. After a variable period of from two to fifty-five days the organism was found in the blood. One passage through a fowl did not diminish the virulence of the blood when used on a guinea pig, but certain experiments lead the author to conclude that immunity could be conferred on this latter animal.

(Comptes rendus de la Société de Biologie.)

VARIOLA IN THE PIG.

BY SZANTO.

OUT of a herd of seventy-two, sixty-four sucking-pigs were attacked. There was loss of appetite, red patches over the skin under the belly, inside the thighs, armpits, and inside the ears. In some there were greyish-red nodules on the groin, varying from the size of a bean to a pea, surrounded with a red ring.

Differing to what is seen in sheep-pox, the vesicle is not umbilicated, it is only a little raised above the skin, and, after suppuration of the contents, the cavity becomes filled up with granulations that dry up and form a crust. It takes about twenty days developing, and as long as it is confined to the skin the prognosis is good, but if it at the same time extends to the mucous membrane, death generally takes place. In the outbreak that came under the author's notice, the mortality was 4.50 per cent.

Nursing-sows or yearling pigs are not attacked, neither were lambs that came in contact with the diseased. Two lambs were inoculated with the contents of the vesicles, both by scarification of the skin and in the trachea, without any result; but seven young pigs that were placed in contact with two diseased ones developed typical symptoms of the disease after a period of incubation of four days.

(*Allatorvosi Lapok.*)

CONTAGIOUS EPITHELIOMA IN FOWLS.

BY BURNET.

CONTAGIOUS epithelioma in fowls has so many appearances in common with small-pox that it has been called avian variola. It is a localised disease affecting the epithelium, and forming true Malpighian tumours, and the cells much resemble those found in certain cancerous growths. Marx and Sticker, in 1902, showed that the fluids from macerated tumours, when filtered through Berkefeld candles, were virulent.

The disease appears in an epidemic form in fowls, pigeons, geese, and turkeys. The growths first show themselves on the parts of the head that are bare of feathers. They often bleed, and are covered with brown crusts. In three or four weeks they wither up and fall off, without leaving any cicatrix. Should the eruption, however, extend, the bird dies from secondary infection. The mucous membranes only are attacked, and there are no lesions seen in the internal organs. Birds that recover are immune against a second attack.

In order to infect a pigeon it is sufficient to scarify the skin and rub it with a portion of a tumour removed from another bird, when growths will appear after four or five days. The virus does not seem to be attenuated after several passages from bird to bird. Extensive lesions can be obtained by plucking the breast and rubbing the whole surface over with a solution of the growth rubbed down in water. A tumour will form at the place that the feather is plucked out from.

The most common way in which infection takes place is by actual contact, as prolonged cohabitation will not cause it. The most certain way, however, of inducing the disease is by intravenous injection. After five days' incubation the growths begin to make their appearance at the point of inoculation. The author has shown that the virus exists in the internal organs and blood, and can be reproduced by ingestion, and that both the blood and liver are virulent. Contrary to the assertions of most authors, who deny the existence of internal lesions in the naturally acquired disease, M. Burnet has seen them in the œsophagus. The epidermis is exceedingly virulent, even when diluted 2,000 times. A solution of the virus is rendered inert in eight

minutes at a temperature of 60° C., whereas the epidermis is still virulent after an hour and a half. Marx and Sticker's experiments show that in glycerine the virus remains active for a hundred and twenty days.

The organism will not pass through a Chamberland P filter, but will sometimes do so through a Berkefeld. Burnet, contrary to Löwenthal, has not found that pigeons have a natural immunity. Certain breeds are easily rendered immune, but in some cases will remain susceptible for six weeks, but in the majority of cases immunity is conferred for four or five months after the first inoculation.

The histological characteristics of the ripe growth show thickening of the epidermis, with considerable enlargement in the size of the cells that degenerate, and the same is seen in the feathers, if they also are affected. The nature of the organism that causes the disease, or whether it is due at all to one, has not yet been absolutely determined, but the probabilities are that it is one that is capable of passing through a filter, and is found in the diseased epithelial cells.

(*Annales de l'Institut Pasteur.*)

SPREAD OF RABIES BY RATS AND MICE.

BY A. FERMI.

RECENT research has shown the important part played by rats and mice in the propagation of rabies. The author, however, accepts these with some reserve. In favour of these opinions he accepts the following: (1) That rodents are very susceptible. (2) That although the virus is attenuated in the passage from dog to dog, it is increased in passing from rat to rat, much more so than through a series of cats or rabbits. (3) That certain authors (de Bassi and Russo, Travali, Marino Zoco, Yalaria, Nicolle and Chantiel, and Ramlin) in medical literature mention persons having contracted rabies from rat-bites. Fermi does not attach much importance to these cases, and in particular criticises a case of Remlengur's of a girl that showed symptoms of rabies six months after having been bitten by a mouse. He remarks that it is quite possible that during this long interval the contagion might have been derived from another source.

Fermi gives many reasons against the accepted theory that rats and mice are factors in spreading rabies, and he has always failed in reproducing it by subcutaneous injection of the saliva and salivary glands of affected animals. He also allowed a rabid mouse to bite two rats and another mouse, without causing any ill results. Nicolle, Chantiel, and Galli Valerio have shown that the saliva of rats and mice was virulent, but they always had recourse to intra-ocular or intra-cerebral inoculation, and never used the subcutaneous method, which is the natural one. From a practical point of view, the results of their experiments are not of any very great value, although rats and mice are susceptible to dilutions of the strength of 1 in 50,000.

Rats that feed on dead bodies of animals may be indirect agents in the transmission of rabies, but mice seldom are, as they seldom feed in this manner. Rabies in rats and mice is very uncommon, and in the

four epidemics mentioned by Flemming and Gordon but little stress is placed on these vermin being factors in its spread.

The author points out that if rabies in the rat is uncommon, in the cat it is still rarer, . . . and that the dog must be considered the chief propagator. . . . In countries where steps have been taken to exterminate rabid dogs—Holland, Sweden, Norway, and Germany—rabies in man has almost disappeared.

(*Centralblatt für Bakteriologie.*)

TWO CASES OF DISEASE OF THE PROSTATE GLAND IN THE DOG.

BY DR. JAKOB (MUNICH).

DISEASES of the prostate gland are not uncommon in the dog, such as catarrhal and purulent inflammation, cystic degeneration, new growths and hypertrophy, "usually in old animals," causing rupture of the intestine, and peritonitis or stricture of the urethra with retention of the urine, cystitis, nephritis and uræmia. The author mentions two cases that came under his notice.

CASE 1.—A dog aged 8. For the previous six months he was noticed to strain at stool and pass blood, with a good deal of pain. Although he drank a great deal there had been suppression of urine for two days, and previously to that there had been pain in passing it. The animal lost his appetite and condition very rapidly. The abdomen was greatly distended, and pressure over the flank and umbilicus caused pain and the passage of a few drops of urine. The smallest sized catheter could not be passed, and was arrested at the prostate. The anus was red and swollen, and the contents of the rectum only mucus and blood. The mucous membrane lining the bowel was œdematous. On examination by the finger both lobes of the prostate could be felt just in front of the pubis. They were hard, about the size of an egg, but not painful.

The urine gave an alkaline reaction; the specific gravity was 1008, with 3.5 per 1,000 albumin; under the microscope it was found to contain epithelium, numerous leucocytes and some red blood corpuscles.

The case was diagnosed as one of hypertrophy of the prostate with stenosis of the rectum and urethra, retention of urine, catarrh of the bladder and chronic nephritis. The prognosis was bad.

The dog died in a few days afterwards, and a *post-mortem* examination was made. The prostate gland was the size of a clenched fist, hard, not easily cut, and when divided the surface was of a grey colour, studded over with cysts. These cysts were the size of a bean to that of a pea, and contained a yellowish-white fluid. The urethra was compressed by the gland, and the middle portion, which was dilated, was studded over with granulations that obstructed the canal. The mucous membrane lining the bladder was infiltrated and the walls thickened. The ureters were dilated and easily admitted the little finger. The kidneys were enlarged, the pelvis dilated and filled with urine, and there was interstitial nephritis.

CASE 2.—A mastiff, aged 4. For the past two months he had been noticed to strain, and had great difficulty in passing fæces. For six days there had been difficulty in passing urine, which was tinged with blood. The appetite was altogether lost, and the abdomen was greatly swollen. The nose was hot, dry and cracked; the feet and extremities cold, the conjunctiva red, and the mucous membrane of the mouth congested. The temperature was 41.4° C.; pulse, 120 and full, and the artery soft. There was a bilateral friction sound over the region of the heart, the beats of which were strong, but no intermittency nor venous pulse. The lungs were healthy, and the respirations 30 per minute.

The abdomen was painful on pressure, and under the loins a hard, solid, immovable cord could be felt that extended into the pelvis. Pressure on the umbilicus caused great pain, with the emission of a thin stream of blood-stained urine. A fine catheter was passed, and about 1,200 cc. of blood-stained urine drawn off, which was alkaline in reaction, 1036 specific gravity, and contained 4 per cent. of albumin and some red blood corpuscles.

Behind the bladder, and at the entrance to the pelvis, a very painful tumour, that seemed full of fluid, could be detected. In front of the pubes the prostatic gland could be felt; it was enlarged, and enfolded the walls of the intestine: in certain parts it was hard, in others fluctuating, as if it contained fluid.

Prostatic cystitis with stenosis of the rectum and urethra was diagnosed, and the prognosis was unfavourable. The dog got worse and worse, and died on the seventh day.

The bladder, which was the size of the dog's head, was adherent to the rectum, and contained about 2 litres of a chocolate-coloured fluid and flakes of yellow lymph. The lining membrane was of a dirty grey colour, and was thrown into folds which in places were adherent by means of cicatricial bands. They were of a reddish-brown colour, hard, and standing out in marked relief. The two lobes of the prostate were the size of a hen's egg, and riddled with cavities from the size of a pea to a bean (purulent hæmorrhagic cavernous prostatitis).

Inflammatory disease of the prostatic gland with newly formed growths always gives rise to hypertrophy. The clinical symptoms are—difficulty in defæcation, and, in the later stage, stenosis of the rectum, with coprostasis, rupture of the rectum, and peritonitis. Secondary complications are stenosis of the urethra, retention of urine, cystitis, hydronephrosis, nephritis, and uræmia. Neither medical treatment nor castration are of any use, the only thing that is of any avail is early extirpation of the gland.

(Wochenschrift für Tierheilkunde.)

ACTION OF CERTAIN MYDRIATICS IN ANIMALS.

BY DR. MÜLLER (DRESDEN).

THE experiments were made with hydrochlorate of ephedrin, mydrin (a combination of ephedrin and homatropin), and hydrochlorate of euphthalmin; each was tried on horses, dogs, cats and rabbits.

Ephedrin is not a suitable mydriatic for animals, it is uncertain in its action on the horse, and so weak on the dog as to be almost useless

for ophthalmoscopic examination. Mydrin has a feeble action on the horse, but a powerful one on the rabbit. Euphthalmin acts powerfully on the horse and rabbit, but its effects only last a short time; it is, however, suited for ophthalmoscopic examination. It is not, however, recommended for either the dog or cat. It is a crystallised powder, colourless, and very soluble in water, and can be used in a 5 to 10 per cent. solution. Its action is:—

	Effects shown after.	Degree of action.	Effects disappear.
Dog ...	35 to 50 minutes	... Medium ...	8 „ hours.
Cat ...	25 to 60 „	... „ ...	5 „
Rabbit ...	15 to 25 „	... Strong ...	5 to 8 hours.

(*Zeitschrift für Thiermedizin.*)

ANASARCA AND PARAPLEGIA.

BY DERNBACH.

THE author describes two cases of anasarca, accompanied with paraplegia, one acute and the other chronic. As far as he is aware, these are the first on record.

CASE 1. *Acute Anasarca*.—The animal, which had been bought in June, was attacked with bad anasarca in September without any warning. He refused his morning feed, and the limbs were swollen and œdematous. There were well-marked petechiæ on the mucous membranes, and great difficulty in moving, especially the hind limbs. The animal was moved, but after going about 50 yards fell down, and was unable to get up again. He died about seven hours after the appearance of the first symptoms of the attack. On *post-mortem* examination, amongst other lesions, there was serous effusion into the meninges of the brain.

CASE 2. *Chronic Anasarca*.—The animal had had an attack of contagious pleuro-pneumonia in June, 1906, and in the following October another one of strangles. In November, œdematous swellings appeared on the limbs and head, with all the usual appearances of anasarca. He could only move with difficulty. In about a month the enlargements began to move about from place to place, and the eyes were attacked. In December, œdematous enlargements appeared on the loins, and he was unable to lie down. He became paralysed on December 13, and was destroyed. There was a large quantity of red serum in the spinal canal, particularly in the brain and lumbar regions.

(*Zeitschrift für Veterinärkunde.*)

HÆMATOMA OF THE MYOCARDIUM.

BY MONOD.

ON making a *post-mortem* examination of a mule that had died after an illness of a few hours, the following lesions were discovered: There was a large clot in the right side of the heart, that extended into the pulmonary artery, partly obliterating it, and adhering to the outer and upper lining membrane of the wall of the ventricle. There was a hæmatoma the size of a pigeon's egg in the muscle of the heart, just

between the upper border of the tricuspid valve, on the right side, at the point where the cardiac artery gives off the ventricular branch. It projected in the form of a black clot, and was lodged in the muscle of the heart, in a cavity the size of a nut. Round the edges of the cavity the torn muscles were infiltrated with a black material. The reason why the vessel and heart structures were ruptured is unknown.

(*Bulletin de la Société Centrale de Médecine Vétérinaire.*)

CONSTRICTION OF THE RECTUM IN A HORSE— SUCCESSFUL OPERATION.

BY DR. SIGL (MUNICH).

THE patient, a gelding, aged 8, was taken ill on October 2, and went off his feed. The temperature was normal; there was abdominal tympanites, with evacuation of hardened fæces, but nothing could be detected by rectal examination. The next day he appeared to be all right, and did his work till October 16, when he was again attacked at 5 p.m. There was slight tympanites, pulse 39 to 42 per minute, small, weak, and irregular; respirations 19. Examination by the rectum gave rise to great straining, and the bladder was much dilated. A strong cord could be felt in the pelvis that passed over the rectum, which seemed as if it was suspended from the lower portion. During the night he again seemed to recover, and was again well in the morning. The author again made an examination *per rectum*, but this time was unable to detect the cord.

The patient remained well again till October 30, when he was again suddenly attacked with colic. Introduction of the hand into the rectum gave rise to pain, but the bowel was empty. About 16 inches from the anus the lower wall of the rectum was gathered up into a fold that almost entirely obstructed the passage up to the top; there was also a long spiral fold that was hard, and felt like a cord, the thickness of the finger. On the far side the bowel had formed a pouch, that was filled with hardened fæces, a portion of which was removed by the finger with considerable difficulty. Enemata caused great pain and straining, which were greatly increased when the fluid was injected beyond the obstruction with an irrigator.

The condition became worse and worse, and morphia injections were no good, so an operation was decided upon. The horse was thrown, and chloroform given. After disinfection an incision about 4 inches long was made on the left side of the anus, and the connective tissue in the retroperitoneal portion of the pelvis broken down with the hand along the upper wall of the rectum, the peritoneal fold punctured with the finger, and the hand passed into the abdomen. A conglomerate mass was felt in the left side of the pelvis, formed of three tumours, the size of apples, adhering together, and with one common peduncle; they were very hard in consistency, and the tissue that united them formed a tense resistant cord. It was only necessary to divide the cord to free the rectum, which was done by seizing it with a long retractor, and dividing it with a probe-pointed bistoury. The wound was then closed, the operation having lasted twenty-five minutes.

On November 7 the wound was examined by means of a reflecting mirror, and was found to be studded over with granulations. On the 27th the rectum was again examined, and found to be permeable, and the tumours could not be detected, having fallen into the abdomen.

The author discusses the question as to whether the tumours were pedunculated lipomata, or whether the case was one of abdominal monorchism, the obstruction being caused by the spermatic cord; the resistance which it offered when cut favouring the latter theory.

(*Wochenschrift für Tierheilkunde.*)

INTESTINAL OBSTRUCTION BY A LARGE OVARIAN CYST IN A MARE.

BY JACOULET.

THE case occurred in the practice of M. Pernard, and M. Jacoulet brought the specimens to the notice of the members of the society. It consisted of a large ovarian cyst, that gave rise to obstruction and fatal colic.

On *post-mortem* examination there was a neoplastic mass involving the left ovary, it was oval in shape, lobulated, with thick walls, and weighed 5 kilos. It filled up the pelvis, pressing against the sacrum, and completely surrounded the rectum. Its contents consisted of about 4 litres of a transparent, albuminous, yellow-coloured serum. The rectum was full of closely matted material that adhered to the mucous membrane lining it.

Examination by the rectum showed the presence of the growth, and that although the chances of success were not great, it might have been feasible to have performed laparotomy and remove the tumour.

In the discussion that followed M. Coquot pointed out that puncture through the vaginal walls with a trocar appeared to him to be the only rational method to adopt.

M. Jacoulet was of opinion that M. Coquot's suggestion was only practicable when the cysts were small; after they had developed excision only would be of any use.

(*Bulletin de la Société Centrale de Médecine Vétérinaire.*)

AN UNUSUAL CASE OF RUPTURE OF THE STOMACH AND DIAPHRAGM.

BY M. P. MAMMALE.

THE patient, a nearly thoroughbred mare, aged 10, of a nervous and excitable temperament, went lame from chronic synovitis of both hind fetlock joints, and it was decided to fire her.

The operation was performed on November 2, the animal being thrown in the usual manner. She got up apparently all right, and was walked back to her box, but unfortunately, during the night, got loose, and in the morning was found to have severely bitten and injured the parts that had been operated upon. Both fetlocks were

greatly swollen, the right bleeding, which was stopped with difficulty, and the mare could not put any weight on it. She was greatly excited with her eyes and nostrils open, and the whole body trembling as if in pain; her temperature was 38.9° C. She was off her feed; would not take gruel but drank water, with sulphate of soda in it, freely.

Anodyne compresses were put on the part, and she remained in much the same condition till November 6. On the morning of the 7th she was found standing on the off hind, but could not put any weight on the near. The temperature was 39.5° C., appetite bad. She was given 20 grammes of antifebrine daily. On November 9 the mare was staggering about, throwing her weight alternately from one limb to another, and trembling violently. She became so unsteady on her legs that an attempt was made to put her into slings, but she fought so much that it had to be given up. The next day, November 10, she went down, and she remained so till she died, on the night of November 11.

A *post-mortem* examination was made next morning. The body was greatly emaciated and covered with bruises. The skin over the hind fetlocks had sloughed in places, and blood oozed out from the points where it had been cauterized. The joints themselves showed signs of chronic synovitis, but, curiously enough, the articular surface presented no ecchymosis, and there was not the slightest trace of suppuration or even of acute inflammation. On opening the abdomen a small quantity of ingesta was found in the cavity, and the stomach was ruptured between the greater and lesser curvatures. There were two ruptures in the diaphragm, about 10 centimetres long, on the left side, close to the pillars, and through which a small quantity of ingesta had escaped into the thorax. There was also slight peritonitis. Death had, no doubt, taken place from the rupture of the stomach and diaphragm that gave rise to peritonitis.

At first the author was inclined to suspect the presence of suppurative arthritis, but this proved to be wrong, and the pain he attributed to the natural excitability of the patient. The ruptures he considered were caused by the tetanic spasms.

He points out that well-bred, nervous horses are much more susceptible to pain than coarser ones, and the reacting spasms may rupture important organs, as happened in this case.

(Revue Générale de Médecine Vétérinaire.)

DIARRHŒA IN CALVES.

BY PROFESSOR C. O. JENSEN (COPENHAGEN).

THE author has previously published a paper on the bacteriology of this disease ("Jensen-Ueber die Kalberruhr und deren Etiologie," *Monatsschifte Tierheilkunde*, 1902), and has continued to study it. He has given pregnant cows large quantities of filtered culture, subcutaneously, without any result. Various antiseptics, such as creoline and methyl blue, and given to the calf only, seemed to favour the penetration of the coli bacillus into the irritated mucous membrane. The addition of digestive ferments and extracts from the mucous membrane of the stomach and intestine and pancreas, was without any effect, also

systems of dieting; in fact, boiled milk only seemed to increase the mortality.

Recourse was then had to antitoxic serum, which was furnished by a horse that had been treated partly with sterilised and partly with living culture of the bacillus of calf diarrhœa.

This serum was used on a farm where diarrhœa prevailed in 1905-6-7. Some of the new-born calves were treated, others were not. In 1895-96 out of thirty calves that had been inoculated the mortality was 57 per cent.; out of thirty-two that had not been, 75 per cent.; in 1896-7 out of forty-three inoculated, 46.5 per cent., and out of sixty-three not inoculated, 76.2 per cent.

Guinea-pigs that had been inoculated were not only protected against the bacteria of diarrhœa, but also swine plague. It was proved that there was a great difference in the species of organism, and that a polyvalent serum was necessary. Even then it was not equally active in all cases. The author discusses Kôlle and Wassermann's views of the disease ("Handbuch des pathogenen Mikroorganismen").

In an earlier paper he points out the great similarity between the organism of diarrhœa and the bacillus coli, and in 1895 he identified them; this was confirmed in 1896 by Willerding and Schütz.

In 1899 Poels pointed out that diarrhœa in the calf is sometimes caused by the para-coli bacillus, and less frequently the bacillus pyocyaneus, but most frequently of all by a very virulent variety of coli bacillus. Poels also stated that infection could take place both by the mouth and umbilicus.

Jensen also recognises the para-coli bacillus, and on rare occasions the *Bacillus aerogenes*, but he is strongly of opinion that the usual cause is a normal coli. He has shown that fatal enteritis is caused by irritant antiseptics. Bongert in 1904, and Joest in 1903, confirm this.

Tesage and Delmer (1902), on the contrary, consider that diarrhœa is caused by a Pasteurella that penetrates by the umbilicus, and Nocard arrived at the same conclusion when studying the etiology of "white scour" in Ireland. In reality the Pasteurella is a normal inhabitant of the mouth and digestive tract of the calf, and by the mouth as much as half a litre of culture has been given without the slightest ill effect; that of subcutaneous or intravenous injection is more uncertain.

Again, however, Jensen, as well as Poels, have shown that the ingestion of even a very small quantity of excrement from a sick animal will cause the disease in healthy calves, also from a fourth to half a cc. of culture in broth. M'Fadyean, however, criticises the conclusion of the French authors. If further proof is required that diarrhœa in calves is caused by the coli bacillus, one has only to refer to the certain prophylactic action of the coli serum and the uselessness of the anti-pasteurellic.

The author divides the various forms of diarrhœa in the calf into the following classes:—

(1) The coli bacillosis, which shows two types.

The first attacks the animal very shortly after birth, and develops very rapidly. It gives rise to enteritis, with tumefaction of the mesenteric glands and the development of large quantities of bacteria in both the blood and organs.

The second is sterner in its progress. It first attacks the calf about three to five days after birth, and is usually fatal in from two to four days. The intestine is distended with gas, and is frequently pallid in colour, without any signs of enteritis. The mesenteric glands are enlarged, but seldom discoloured; in the majority of cases they are blanched, the spleen is seldom enlarged, and there are but few organisms present either in the blood or tissues.

(2) The *avogenes* bacillosis that comports itself in the same fashion.

(3) The para-coli bacillosis or pseudo-coli bacillosis, which is characterised sometimes by hæmorrhagic enteritis, sometimes by slight enteritis. The mesenteric glands and spleen are always enlarged, and in some cases there is fibrinous exudation on to the serous membranes. There are numerous micro-organisms in the blood, spleen, and lymphatic glands.

(4) Proteosis, which attacks calves about a week old; its progress is slow, and the fæces foul smelling, but not stained with blood. The intestine is distended with gas, is pale in colour, and the mucous membrane quickly exfoliates after death. The lymphatic glands are slightly smaller and congested. Bacteria are found in the contents of the bowel (normally none that will liquify gelatine are found in the calf), but, on the contrary, there are none in the blood, spleen, or lymphatic glands.

The author endeavoured to prepare a serum to counteract proteosis from the goat, but the experiment has not advanced far enough to allow him to speak with certainty as to the results. A serum for the *B. avogenes* is easily obtained by subcutaneous and intravenous injection in the horse, and the results from its use have been satisfactory. Infection of this nature is, however, so rare that it is not worth while to keep the serum ready prepared.

Coli Serum.—This is prepared by intravenous injection into the horse. Large injections of culture promote a serum with high agglutination but low bactericidal properties. Subcutaneous injection causes local sloughing. Every culture will not, however, give a protective serum. A monovalent serum is easy enough to prepare, but a polyvalent is much more difficult.

Para-coli Serum.—This form is often very virulent with the horse; a dose of $\frac{1}{10}$ to $\frac{1}{2}$ cc. in broth, injected intravenously, gave rise to most severe symptoms. Para-coli serum is inert in the presence of coli, while coli serum is inert with para-coli. Both chloroform and carbolic acid may be added as preservatives without any danger.

Before use the particular organism that causes the disease should be identified in order that the proper serum can be employed. Jensen's serum has been largely used in Denmark, Germany, Norway, Finland, and Italy, and the author hopes before long to publish some complete statistics.

On some farms the mortality has fallen from 100 per cent. to 0 per cent., but on others the results have not been so favourable. The drawback to treatment by this method is the rapidity with which the disease develops.

(*Zeitschrift für Tiermedizin.*)

THROWING HORSES FOR OPERATIONS IN THE PRUSSIAN ARMY.

IN order to ascertain whether they would be justified in sanctioning operating tables in veterinary hospitals, the Prussian War Office called for a return of the number of horses that had been cast in the usual way with hobbles during the last five years, the operations that had been performed, and the accidents that had arisen by reason of it. The number of horses cast varied very much in different corps, from ninety-three in the 9th Uhlans to *nil* in the 15th. In the seventeen army corps of the Prussian army 2,186 horses were thrown, with thirteen accidents, of which nine, or 0.4 per cent., were fatal, during the whole period.

The most important operations were: Cautery, 718; tenotomy, 29; neurotomy, 390; trephining, 22; removal of tumours, 135; fistulous withers, 133; stripping the sole of the foot, 82; for gathered nails, 117; section of flexor tendons, 22; castration, 10.

(Zeitschrift für Veterinärkunde.)

DEATH OF THE FÆTUS FROM TORSION OF THE UMBILICAL CORD.

BY BALOG.

EIGHT days before her time for foaling was due the fluids escaped in a mare, and the envelopes appeared at the vulva, but no progress was made with delivery. The fœtus on examination was found to be dead, and embryotomy had to be performed. The mother recovered. The cord was about 2½ inches thick, of a dark purple colour, and twisted five times on itself.

(Allatorvosi Lapok.)

RECTAL EXAMINATION IN COLIC IN THE HORSE.

BY PROFESSOR KLETT (STUTTGART.)

Who first introduced the method of rectal examination is unknown, but in all probability it was first practised for the relief of colic. There is a small pamphlet by Ehrmann, in German, published in 1778, that deals with examination by the rectum, but only with the object of emptying the bowel. In 1827 Tennecker advised that in cases of retention of urine pressure should be applied to the bladder through the rectum, but the first to propose that a diagnosis could be made by this means was Diepholy, in 1839. He recommended first of all that the bowel should be emptied as completely as possible, and the hand introduced to detect if there was dilatation or a diverticulum, tumour, abscesses, or cicatricial stenosis. Hutyra and Marek suggested it for the diagnosis of torsion of the floating colon.

In 1890 Telkmann advised that rectal examination should be had recourse to for the diagnosis of torsion of the intestines. He advises that the left hand be introduced and that at the fourth lumbar vertebræ

a painful tense cord, running in a vertical direction slightly deviating to the left, will be felt, which is the twisted mesentery. Möller confirmed Telkmann's observations, and he pointed out that if the twist was to the right, those on the mesentery would run from before backwards, and from without inwards, and the reverse if it was to the left. Hutyra and Marek state that an overloaded intestine and tympanites will also give rise to this corded condition of the mesentery; and Tensen that it is more perceptible as the tympanites disappears. He also points out that if the overloading and tympanites is situated in the posterior portion of the bowel, near the pelvic cavity, the cord is less apparent than if it is in the front part.

The author attributes a certain amount of importance to the pelvic curve. In cases of obstruction its convexity is to the right, in twist of the colon to the left. Palpation of the colon gives the following symptoms: If the cæcum is found to be distended with gas, but the loops of the small intestine are normal, it is a proof that the cause of the colic is posterior to the ileo-cæcal valve; if the small intestines are distended the cause is above the valve. According to Klett, the gas in the large intestine is unable to escape through the ileo-cæcal valve, or to gain access to the stomach through the cardia. If gas is found in the small intestine it is either formed there or comes from the stomach. In cases of invagination it must be remembered that gas does not form till the end, and that the cæcum should be examined to ascertain if there is torsion, rupture, &c.

Nearly all authors are of opinion that volvulus can only be detected by *post-mortem* examination, but that continuous tympanites of the small intestine, taken in conjunction with the pain and the negative results of the examination by the rectum, should be looked upon with grave suspicion. Often a first examination will not reveal much, and it should be repeated. The author usually finds that if this is done, in a large number of cases a diagnosis can be arrived at with a certain amount of accuracy. He quotes a large number of cases from current literature in which this method of examination has been successfully adopted.

(*Deutsche tierärztliche Wochenschrift.*)

MAMMITIS IN THE COW.

BY M. H. CARRÉ, ALFORT.

Two sorts of mammitis have been recognised in the cow—one caused by Koch's bacillus, the other by Nocard and Mollereau's streptococcus.

The author claims to have discovered a new micro-organism that is altogether different from the true pyogenic of the ox (Lucet, *Recueil de Médecine Vétérinaire*, May 15, 1893) or the various ones that cause inflammatory diseases of the udder (Gedoelet, *Traité de Microbiologie*.)

A culture injected into the udder caused violent mammitis.

In November, 1899, M. Pierrrot, of Stenay, sent some samples of milk from cows that had been attacked with what appeared to be a contagious form of mammitis to the author for examination. The first case in the herd had appeared in June, one of the quarters became inflamed and the milk stopped, only a few drops of serous fluid, contain-

ing pus, being drawn, and at the base of the teat there was a hard growth the size of an apple.

The cow was treated, and being apparently cured, was returned to the byre in September. Very shortly afterwards another cow was attacked in the same way, and subsequently four more, two of which were milch cows that recovered their milk. On examination the milk was found to be full of small, very fine bacilli, much resembling those of Rouget in the pig. The organisms were united in tangled masses, either in the plasma or surrounded by the phagocytes, and took nearly any aniline stain, but more particularly Gram's.

The bacillus grew on gelose or in broth if milk or blood serum, either cow's or rabbit's, was added to it. On gelose and serum fine translucent colonies formed in twenty-four hours, slightly raised above the surrounding surface, and from which they were easily detached. In bouillon the medium was not cloudy but became full of a number of fine grey particles, in suspension in it at first, finally falling to the bottom of the tube and forming a deposit. Planted in milk they caused it to coagulate from about the third to the fifth day, but there was never any formation of gas. The clot after a time partly dissolved; the milk had a strong acid reaction, and the culture rapidly lost its vitality. Rabbits and guinea-pigs were quite immune, but a drop of the culture injected into the cow's udder rapidly gave rise to acute inflammation in the quarter, also in the goat, and indeed this animal appears to be more susceptible than the cow, and to be able to communicate the disease; 20 cc. of culture, given subcutaneously to a cow, gave no results, but the same quantity given intravenously to one in calf caused abortion one month afterwards. Blood from the fœtus in milk gave a pure culture of the same bacillus with which the cow had been inoculated, but neither the fœtus nor membranes showed any lesion. The author thinks that the result of this experiment may throw a light on some cases of sporadic abortion that cannot at present be accounted for. Taken by the mouth the bacillus appears to do no harm. A calf had been sucking a cow that suffered from mammitis for several months without any inconvenience, yet the milk was extremely rich in bacilli.

The author proposes to call this new organism "*Bacillus mastitidis contagiosae*," and he has found it in two out of eight specimens sent to him.

(*Revue Générale de Médecine Vétérinaire.*)

THE PREVALENCE OF MEASLES IN HUNGARIAN PIGS.

BY BREWER.

OUT of a total number of 987,908 pigs that were killed in the public slaughterhouse at Budapest, between 1902 and 1905, 10,265, or 1.03 per cent., were found to have measles. In country parts of Hungary the proportion was 0.64; in Croatia 3.91, and Servia 2.26. The parasite was detected in the heart and tongue in 26.45 per cent., muscles of the neck 23.85 per cent., abdominal muscles 8.35 per cent., and shoulder 8.09 per cent. Very few were found in any other region of the body.

(*Husszemle.*)

Letters and Communications, &c.

Mr. O. A. Elias; Mr. J. S. Lloyd; Professor J. J. O'Connor; Mr. H. Hanna; Professor J. F. Craig; Mr. W. F. Garside; Mr. T. F. Prime; Mr. J. Malcolm; Secretary Royal College of Veterinary Surgeons; Board of Agriculture; D. A. T. I.

Books and Periodicals, &c., Received.

Ostertag's Meat Inspection; Veterinary Materia Medica and Therapeutics (Winslow); Ophthalmologie Vétérinaire et Comparée (Dr. E. Nicolas); Journal of the Royal Army Medical Corps.

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